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ABSTRACT

This report focuses on evaluation of urban vocational programs by black students. Tutorial review sessions were conducted with 72 black high school students from a large vocationally-oriented school in Philadelphia in order to evaluate and revise self-instructional programs based on standard courses in vocational education. The hypothesis that instructional programs revised under student review would yield more learning for black students than materials revised through instructor feedback was supported. In an empirical test with 35 students, post-test results between experimental groups and a control group were significantly different at the .05 level. Students contended that status work is barred for blacks and "dead end" careers at minimum salary levels are offered to the non-college bound student before he is able to realistically match his abilities and interests against the rapidly changing job situation. Students proposed a demonstration project for high school dropouts which used film-making as an aid for the dropout to gain a sense of personal well-being and the ability to communicate before specific career-oriented training. Twelfth and Oxford Street Gang members were trained in film-making; after producing a documentary, they launched several new entrepreneurial activities. [Pages 34, 50, 51, Appendix J, and pages 10 and 11 of Appendix L will not reproduce clearly in hard copy due to their marginal legibility.] (Author/JW)

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# THE PRODUCTION AND VALIDATION OF EDUCATIONAL SYSTEMS PACKAGES FOR OCCUPATIONAL TRAINING OF DEPRESSED AREA STUDENTS

Or

# BLACK STUDENT VERSUS TEACHER EVALUATION OF URBAN VOCATIONAL PROGRAMS

By

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**September, Nineteen Seventy**

## SUMMARY

Tutorial review sessions were conducted with seventy-two black high school students from a large inner city, vocationally-oriented high school in Philadelphia for the purpose of evaluating and revising self-instructional programs based upon four standard courses in vocational education. Comparisons were made of a sampling of the student improved texts and associated multi-media materials with texts modified through teacher evaluation and feedback to the authors. The hypothesis that instructional programs iteratively revised under student review conditions would yield more learning for black students than materials revised through the instructor's feedback was supported in an empirical test with thirty-five tenth grade students. Post-test results between two experimental groups and a control class were significantly different at the .05 level of confidence.

Formative and summative evaluation methodology was combined with intrinsic appraisal of the objectives of the educational programs. Students took issue with the curriculum designers and teachers over career ladder concepts and vocational counselling procedures. They contended that status work is typically barred for the black student and "dead end" careers at minimum salary levels are offered to the non-college bound student before he is able to realistically match his abilities and interests against the rapidly changing job situation for blacks. The students proposed a demonstration project for high school dropouts which utilized the performing arts (film-making) as a vehicle for aiding the dropout to gain a sense of personal well-being and the ability to communicate before specific career-oriented training.

The film-making project was designed to test Tumin's concept that an alienated student introduced to an arts experience for the first time will go from hostility to becoming skilled in the art form to better understanding of self and peers and finally to a positive orientation toward training and work. Members of the Twelfth and Oxford Street gang were trained in film-making and after eight months of producing their own documentary launched several new entrepreneurial activities in the neighborhood of North Philadelphia. The objective data drawn from the longitudinal study of individual members of the gang tended to support Tumin's conceptualization of a process sequence. Further study of the arts as an adjunct to vocational educational and career guidance was recommended. Rules and procedures for conduct of arts programs with alienated urban youth were also set forth.

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# SECTION I / BACKGROUND TO THE RESEARCH

## Introduction

Of the staggering number of problems facing urban schools, one of the most critical is the lack of instructional material tailored to the backgrounds and aptitudes of inner city students. The need for such materials is keenly felt in big city school districts. The success of other innovations and changes in the structure of the school program - smaller classes, longer school days, increased flexibility of student scheduling, work/study programs, and the like - depend in large measure on the relevancy of the instructional materials being used. As James L. Farmer, former director of the Center For Community Action Education, said at a national conference on the education of the disadvantaged (1), "Instructional materials, including textbooks, need to be relevant to the lives, the experiences, and the frames of reference of the learners. Otherwise, they cannot be meaningful aids to learning."

Many current attempts to produce "relevant" materials, however, have been called 'sugar coating to the same old bitter, ineffectual pill.'" Evans Clinchy, of the Office of Program Development, Boston Public Schools, told the same conference that most education programs "were still planning to subject kids to the same basal readers (perhaps jazzed up with a few black faces). They are still going to expect kids to run the conventional rat race of right answers and coverage of large quantities of stale, obsolete, bodies of knowledge, or what one of the delegates referred to as the four R's of 'rote, recall, regurgitation, and restraint' (2)."

In the general alarm and confusion about the educational needs and abilities of the disadvantaged, official blessing has been given to preventive action, such as Head Start and enrichment programs for the very young. Meanwhile, thousands of high school students, deficient in the basic educational competencies, poorly motivated, and with little faith in the value of education, are dropping out of crowded, inadequate city schools and attempting to enter the marketplace or opting for the other alternatives of delinquency, drugs, and the armed forces. As the concerned and aroused neighborhood organizations attempt to turn back this tide, they become critically aware that textbooks, manuals, and multi-media systems packages are designed for a predominantly middle-class student population and suburban schools. The materials that the urban schools need, they allege, should capitalize on the real abilities and strengths that the "disadvantaged" learner possesses.

## The Advantages Of The Disadvantaged

Much has been written about the psycho-social situation of the minority student, particularly the Negro - the poverty of his cultural environment, the lack of strong male identification, his

impaired ability to conceptualize or concentrate on a complex task, and so on. In a plea for "the slow, gifted child," Frank Riessman has pointed out the considerable advantages that exist in the culture and style of educationally deprived persons. He lists in part:

> . . . cooperativeness and mutual aid that mark the extended family, the avoidance of the strain accompanying competitiveness and individualism; freedom from self-blame and parental over-protection . . . enjoyment of music, sports, games, and cards; the ability to express anger, freedom from being word-bound; an externally oriented rather than an introspective outlook; a spatial rather than temporal perspective; an expressive orientation in contrast to an instrumental one; content-centered, not a form-centered mental style; a problem-centered rather than an abstract-centered approach; and the use of physical and visual styles in learning (3).

These last categories should be particularly exciting for curriculum developers and commercial publishers of educational materials. Independent researchers (4) have demonstrated the sharp distinction between children who rate high verbally and those more adept at visual imagery and spatial skills. The latter tend to excel in the early school years, but by third or fourth grade, have fallen behind the verbally gifted in a school program that aims at cultivating verbal and rational competencies. By "turning off," in effect, at an early age, the educationally disadvantaged child may well have preserved his creativity and his ability to learn in the active, self-involving manner difficult for a highly intellectualized, highly verbal youngster. While he may remain at the fourth grade level in reading and spelling, the deprived student may well have avoided the conditioning to patterns of thought and expression that, according to McLuhan, are obsolete in this electronic age. He may be more open to learning through the visual, aural, and manipulative stimuli now available through modern technology. He may be able to generate more imaginative solutions to problems than the middle-class honor student.

## Background To The Present Study

The present study used exploratory research techniques to test the problem solving ability of urban high school students in reference to the modification and improvement of educational programs in the areas of vocational and basic skills training. The research, conducted in a North Central Philadelphia Tutorial Center, enlisted the aid of seventy-two black high school students from the Simon Gratz High School to serve as paid student evaluators of five self-instructional programs derived from textbooks and manuals then in use at the high school. The procedure followed in the student

evaluation phase of the research applied Silberman, et al, tutorial routines to the study and revision of the instructional programs (5). Student feedback, using Runkel's paradigm (6), thus became a primary input to the modification of the instructional packages and accompanying multi-media materials. Comparisons were made of a sampling of these improved texts with texts modified under conditions of teacher evaluation. Teacher feedback was based upon personal observation of the original versions of the self-instructional programs while in use in small classroom settings and the examination of student responses to diagnostic test items seeded throughout the instructional programs. Of interest were the differences in the quality and nature of feedback from the instructors and from the disadvantaged students. Of primary interest, however, was the comparative effectiveness of the two approaches to evaluation - iterative, tutorially-based revision and evaluation and objective field testing in the classroom.

Scriven (7) has defined evaluation as an activity that consists of gathering and combining performance data on a set of goal statements. He describes two kinds of evaluation procedures. Evaluation takes place at intermediate stages of curriculum development while the unit is still fluid, for the purposes of obtaining feedback and making revisions, or when the unit is completed, for final assessment of product or outcome. These two types of evaluation with their differing values have been defined by Scriven as formative and summative. Formative evaluation procedures are employed when the textbook or supplementary materials are still in development. A summative evaluation leads to an overall evaluation in order that general conclusions can be made about the finished product. A summative evaluation does not tell anything about how to improve the instructional materials, nor what changes are required in sub-units to better reach the established goals of the curricula.

Stake (8) raises another kind of distinction between evaluation procedures and the purposes of evaluation from those of Scriven. He establishes a difference between intrinsic evaluation and payoff evaluation. Intrinsic appraisal of the instructional unit deals with the value or merits of the unit - its content, its goals, its contribution to the general goals of the educational program, et cetera. Payoff evaluation deals with the immediate and delayed effects of the instructional material on the student population, and makes use of data gleaned from pre- and post-tests, experimental versus control group comparisons, frequency response data, and the like.

Those who acknowledge only payoff evaluation procedures as acceptable research strategy argue that all that really counts in evaluation is the hard data which objectively reflects the effects of the instructional units on the students. Any appeal to the appropriateness of goals and content or the quality of the production units

are defensible only insofar as they directly correlate with results. The educator who is concerned with intrinsic evaluation is likely to counter the hard data evaluator by making reference to important values that cannot be measured by today's test instruments and research procedures, particularly with respect to the minority disadvantaged. He is most likely to point to the "face validity" of the instructional units - an important feature for inner city groups who are increasingly demanding "authentic" materials.

Both tutorial procedure and classroom tryout were designed to mix the formative/summative evaluation methodology with intrinsic criteria. Accordingly, value judgments made by students and teachers were given as much weight as objective data. The significant variable at test was the extent to which student learner or experienced instructor could identify and modify the instructional operations that would lead to improved learning with a population of educationally deprived, academically arrested, inner city students.*

To increase the likelihood that the results of the comparative studies would be stimulative to other researchers, taped recordings of student-tutor interactions and records of student and teacher feedback were maintained throughout the curriculum evaluation research phase. The system of observation and analysis of this feedback data was developed from existing observational schemes (see MIRRORS FOR BEHAVIOR as an excellent anthology of classroom observation instruments) (9), but leans most heavily on the earlier work of Flanders and Wright (10). Essentially verbal behavior was of primary interest. Categories of feedback data were developed from transcribed protocols and classified in a general category of Content-Related Feedback: Student-Tutor Interactions, Teacher Feedback, and Observer/Recorder Input. These sub-categories, selected for the analysis of the feedback data, took account of both intrinsic and pay-off evaluative statements.

Conflict Over Objectives And The Design Of Additional Research

In the final stages of research, intrinsic evaluation became the paramount concern of student evaluators working in the vocational counselling and guidance areas. It was initially expected that the intrinsic value of the goals set for the educational material would be of primary interest ot the curriculum designers and experienced teachers alone. Nevertheless, as the final phases of the research were approached and the Summer, 1967, tutorials implemented, serious conflicts between the student-tutor population and the curriculum designers arose over the objectives of the instructional

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*The students of the Simon Gratz High School live in an area of high population density, predominantly black, and their school in 1966, had a drop-out rate of sixty percent.

units concerned with teaching job search and job acquisition skills.

At issue were the attitudes that the students held with regard to career ladder concepts for black students and the traditional approaches to finding productive employment. Their contention was that satisfying, well-paying, status work is barred for the blacks and that traditional career counselling concepts end up hurting the student's chance for a satisfying life.* They proposed a new approach that would minimize the pressure on the student to accommodate himself to the existing job situation and would encourage him to engage in entrepreneurial activities that would change the job situation rather than call for adjustment to it. The students' strategy was for a creative program toward career development that would give maximum opportunity to write, speak, and observe oneself objectively; in short, a psychological orientation toward vocational training. Their vehicle, as proposed in a formal request to the staff of the tutorial center, was a film-making, demonstration project for high school drop-outs. As outlined in the request, this arts project would be assisted by the professional staff, "but method of operation, goals, and the content of the film and lecture would be made only by the participants themselves." In this manner, the students hypothesized, most of the psychological barriers to developing a career perspective and finding intermediate employment might be overcome through a performing arts program that paid salaries and gave the school drop-out a chance to "get himself together." They contended that the direction of the instructional materials already produced by the project was to prematurely press non-college bound youth into available outlets before the students had begun to understand their abilities and interests.

Recognizing that the currents of self-direction and self-actualization were running strong in the militant leadership among the students, the project director and the principal investigator gave free rein to the presentiments that were brought to the tutorial center. As a result, a totally new phase of research was created, one aspect of the original research program was discarded, and a study of the arts as an adjunct to vocational education was undertaken.

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*A study made by the Colorado Employment Service a few years ago demonstrates this point very clearly. A group of trainees for professional interviewing positions, most of them white, were instructed to go out into Denver and look for unskilled or semi-skilled work. Each of the applicants was given a fictional work history, which included some of the characteristics of the hardcore unemployed, such as arrest record. Very quickly, these trainees began to exhibit many of the behavioral characteristics that the unemployed commonly possess. They were hostile in job interviewing situations, developed symptoms of apathy; several applicants were found in their hotel rooms staring out of the window.

From the feedback the students were giving, what black youth of seventeen to twenty-one needed was a chance to live a self-directed existence once out of high school without having to make more or less permanent commitments. They needed an opportunity to become observers of their community, their neighborhood, and they needed to be able to express their opinions and have them heard. They were expressing a need to make tentative inquiries and commitments without having to live with them for the rest of their lives. The art project, particularly a film project, would serve as an interesting test of these sentiments and would have the virtue of expanding the overall project to incorporate work with school dropouts along certain lines set forth by peers who had elected to remain within the system but were restless to change it. Accordingly, the challenge of the student evaluators was accepted and in conference with the monitors at the U. S. Office of Education, both the deadlines for the project were extended for another eight months and the scope of the project expanded to include this entirely different attack on curriculum development, student participation, and career development.

## The Arts As a Mean To Vocational Preparation And Career Development

The effort to educate the poverty area teenage student must, in part, be made outside the school system. The obvious reason is that an estimated one-third of the school population in disadvantaged areas drop out of the formal school program by the tenth grade. If these youngsters are to be reached at all, it must be through non-school related projects.

Special non-school related projects offer a way of reaching the dropout and the near-dropout student with a rewarding learning experience that differs in a number of crucial ways from his negative school experience. In the Bedford-Stuyvesant district of Brooklyn, for example, dropouts have been involved in a community survey of their own neighborhoods. This survey will lead to the identification of special projects to be taken up by these students - for example, the reporting of building code infractions to city hall. In St. Louis, Detroit, Philadelphia, and Boston, in-residence work projects sponsored by civic groups have proved a successful means of re-sparking positive attitudes toward learning and employment in student dropouts.

The arts have special relevance in the context of non-school related vocational projects. In many urban ghettos, the community art center and storefront studio offer a way into the job market for the school dropout or the non-college bound student. More importantly, they offer an alternative to low-scale employment and give the student a chance to get himself together and sample his responses to a variety of experiences. The art center directors generally concur that the student's capacity to enter society as a productive member

depends as much on his sense of personal well-being and his ability to communicate as it does on specific career-oriented training. In the application of the arts to vocational preparation and career development, it is expected that students will exhibit the following behavior: First, that the participant has fun and gets pleasure from the activity. Second, that he gains skill in a craft. Third, he gains some understanding of himself and his peers. Fourth, he shows an increase in self-esteem, including pride of race or cultural heritage. Fifth, there is increased readiness for cognitive learning. Sixth, a more positive orientation toward work. Seventh, he demonstrates in his work an acceptable normative behavior. While these categories are not necessarily interdependent, and improvement may be evident in one area while lacking in others, it is suggested that these attainments can constitute a process sequence for individuals exposed to participatory performing arts programs. It can be hypothesized then that an alienated individual who is improving over the months will go from fun to skill to understanding to self-esteem to readiness for learning to positive orientation to work to acceptable conduct on the job. Such development patterns may well be reflected in the products of the student/artist as he improves in outlook as well as in his overt behavior.

If it can be hypothesized that the individual's manner of seeing the world and communicating this world to others reflects his psychic outlook and his state of socio-cultural identity, then some of the elements of the "process sequence" or development pattern may be found in the analysis of student-produced art products. For example, the detailed study of three or four films produced by an individual student, or the succession of films produced by a group of students, may reveal the extent to which self-understanding is developing within the group and how much peer group objectivity is evolving. Longitudinal analysis of film products may show increasing self-esteem and give evidence of a broadening view of community and increasing ethnic identification. In addition to facilitating research into attitudinal and personality development, film has other elements that make it a valuable medium for study:

1. It is divorced from nearly every aspect of the student's previous educational experience.

2. The making of a movie demands a serious creative effort which, if limited in scope and directed by the student's personal interests, will provide an important experience of success and accomplishment no matter how effective the statement.

3. It provides an opportunity for the film-maker to engage in a genuine social dialogue. The end result may be that he sees how his personality

affects others. This process is a close analogue of group psychotherapy, psychodrama, and sensitivity training, and leads to similar benefits.

4. Film-making makes the student a better perceiver of his environment.

Because of the useful qualities of film for research and because the arts seem to hold many of the answers to problems of motivating and energizing young minority dropouts toward work and productive employment, a pilot film project was initiated with a group of young black men (ages fifteen through twenty), known as the Twelfth and Oxford Street gang in North Philadelphia. The general objective was to rekindle an interest in vocationally oriented learning and to motivate some participants to productive employment by providing a non-school related educational experience with hourly stipends for learning. More specifically, the project was pursued with the following set of goals:

1. To give the participants the experience of working on a short-term, task-oriented group project as a member of a male-led team.

2. To provide the experience of both exercising and accepting authority.

3. To provide a constructive activity with a visibly successful end-product.

4. To expose participants to the realistic costs of a productive effort (setting goals, planning, scheduling, budgeting time and resources, tolerating frustration, et cetera).

5. To stimulate, through a highly motivating laboratory environment, a desire to resume some form of vocational training, or to take up active on-the-job training.

6. To provide the opportunity to improve such basic skills as writing and visual perception, and to become acquainted with such vocational areas as lighting, stagecraft, film development, et cetera.

7. To provide the opportunity for mutually gratifying interaction with members of the adult community.

8. To stimulate through a regularly paid program of work/study, the habit or expectation of receiving compensation for services rendered.

The research program is built around a taxonomy or classification system designed by Dr. Melvin Tumin of Princeton University (11). This system was created as a frame for research in the arts. A primary intent of the framework was to study different kinds of arts programs and make some judgments as to the possible success or failure of various types of programs to meet their specific goals with regard to different classifications of student populations. But another use of the taxonomy was the suggested development of a hierarchy of events occurring in different arts projects and programs that were parallelled by changes in the attitudes and overt behavior of student participants. Dr. Tumin hypothesizes, for example, that an alienated student entering a performing arts center for the first time can be expected to have certain art-related pleasures and some degree of satisfaction in his own skills achievement. But from there he moves through a sequence of attitude changes - self-esteem, readiness to learn, et cetera - to changes in overt behavior - i.e., steadier work habits, more normative conformity, et cetera. The evidence in support of these contentions can be found, he suggests, in the products of the student artists and the effects of participation in the arts programs as evidenced by the participant's behavior both within and external to the arts center.

One aspect of Tumin's system is reflected in the studies of the Annenberg School of Communications. Dr. Sol Worth and colleagues have researched student and adult film productions, gleaning them for insights into the attitudes and self-imagery of the film-maker. Under a National Science Foundation grant, Dr. Worth explored the medium of film in terms of its use in revealing the attitudes and cultural values of members of a Navajo Indian tribe taught to create film (12). The study found that it was possible to teach young members of the tribe to depict many of their cultural inheritances through the medium of film, particularly when skilled film instructors gave only consultation and did not intervene in the actual production process. Both the culture and the heuristic process in approaching film-making were consistent with the Navajo culture.

The other aspect of Tumin's system - i.e., that of objective measures reflecting attitudinal and behavioral changes - has its parallels in the work of Dr. Charles E. Skipper, who studied the effects of the arts program of the Dayton, Ohio school system on the creative abilities of adolescents (13). Skipper's work indicated that student attitudes toward the arts and toward learning in general are positively correlated with amount of participation in the art programs of the Dayton schools. Measures from certain standardized attitude scales reflected these changes and were significantly different from control groups of students not participating in the arts studies. It is worth remembering,

however, that standardized tests used on a population of deprived youth may result in samplings that hide or distort the real variables affecting learning behavior in the urban schools.

The approach to research and evaluation at this phase of the research program combined subjective reporting with hard data gathering from daily attendance records, test item responses, and objective chronicling of the participants' employment history and educational pursuits. The study, however, is not considered the final word in formalized research in the arts; it was undertaken with the expectation that more definitive research would be forthcoming if the results merited study. The arts as an adjunct to vocational education has for too long been overlooked as a productive field of exploration.

The many false starts in the conduct of the research reported upon in the following pages seem to be inevitable by-products of action-oriented programs particularly those that are conducted in the explosive climate of the urban school. Admittedly,too, most of the research on learning has been of the formal hypothesis testing variety with the construction of a suitable analysis of variance design and study of main effects and interactions. The basic strategy followed in this research phase is an iterative process of pilot studies using participant feedback to indicate new directions for exploratory research.

A fertile field for empirical research seems to exist in action-oriented programs in the urban environment, particularly with the arts as an adjunct to vocational education. The problem is to build in data collection processes early in the design of the project. Collecting objective information is usually anathema to the artist/director or the community action persons who undertake the leadership of such programs. It is hoped that this pilot project not only demonstrates it can be done, but will lead to further hypothesis generation and systematic study. And beyond the data gathered in the research, other benefits can be realized - ninety-two urban youth were paid participants in this project, substantial improvements were realized in the environment of the Simon Gratz High School, a film of national importance was produced, the area bounded by Twelfth and Oxford Streets in North Philadelphia became somewhat more tolerable because of the entrepreneurial interests of its resident gang, twenty school drop-outs became a force for education and social change.

## SECTION II / METHODS

### Procedures For The Basic Curriculum Evaluation Phase Of Research

The project was begun by renovating the machine shop of the Simon Gratz High School on the north side of Philadelphia. The former machine shop became the informal tutorial center for curriculum development to be operated for and by the students of the high school. Because of these improvements - an expenditure of some $10,000.00 in school district and project funds - the climate for learning and outlook for change on the part of both faculty and students seemed to distinctly improve in the Fall of that year. The SATURDAY REVIEW later reported on the effects to this high school of the infusion of new interest and new leadership stemming from the research program and other special projects (14).

In the initial workshop phase of the study, extending from August to September, 1966, a team of teachers and consultants selected five subject areas for the development of instructional units that would be considered basic to the success of vocational students soon to be looking for work or preparing for specific work oriented experiences. These instructional units would constitute the primary dependent variables for subsequent modification and testing. The subject areas selected were: Reading, Mathematics, Speech, Writing, and Measuring and Manipulative Skills. Defining the educational objectives became the first specific task of workshop participants. These objectives are set forth in Appendix A.

The preparation of instructional units in the five subject areas began with a series of staff meetings to establish overall strategy. Out of these discussions came a seven point approach that was followed assiduously:

1. The beginning of each unit should be planned to maximize motivation.

2. The units should be interconnected around a vocational theme that relates the material to the students' lives.

3. Each unit should actively involve the student in performing various tasks related to the material he is learning.

4. The illustrative material and content of each unit should be related to the students' everyday concerns, to whatever degree is consistent with the development of basic communications and mathematics skills.

5. Each concept should include enough illustrative material to make it clear to the student.

6. Each new concept should be developed step-by-step. Illustrative questions, situations, and activities should be planned so that easy questions come first, thus allowing the student to succeed, and are then followed by more challenging ones.

7. Technical vocabulary should be kept at a minimum. When technical terms are necessary they should be briefly defined each time they are used, until the student gains a firm grasp of their meaning and application.

In brief, the writing plan consisted of review, selection and arrangement of existing courses offered at the high school in order to find usable materials, to eliminate extraneous content, and to establish an appropriate baseline for subsequent modification.

On-the-job interviews with a sample of workers who had graduated from the high school were undertaken to determine what part reading, writing, speech, and mathematics played in obtaining and keeping jobs of the kinds they held. Preparation of the complete statement of objectives for each instructional unit resulted.

Weekly staff reviews were scheduled and the use of consultants as needed by individual author teams was arranged. Critical examination of curriculum units from other related projects such as: Mobilization for Youth, Durham Educational Improvement Program, Cardoza Project in Urban Teaching, et cetera, was carried out by the five writing groups.

Consideration of relevant texts and materials, especially if recently published, resulted in the purchase of every relevant self-instructional unit that the different subject matter teams could locate.

Staff deliberations produced several innovations. The first, to have student operate cameras and tape recorders, was originally proposed as a technique to stimulate student interest. It was submitted to the staff for consideration, and emerged as specific learner activities in the reading, writing, and speech units. The second, to combine reading, writing, and speech into a communications unit, was suggested as an ideal way to encourage students to create, as well as to learn from instructional materials. The third, to combine all units into a job search-acquisition game was felt to have great possibilities but demanded competence beyond the current staff.

The following personnel were assigned positions of curriculum team leadership and worked with two additional staff members from the Simon Gratz faculty in the design of the original unit material.

| | |
|---|---|
| Mr. William P. Cannady<br>M. S. in Education<br>Temple University | Measuring Skills Unit |
| Mrs. Maureen Brock<br>Certificate of Education<br>Oxford University | Reading Unit |
| Miss Gail Leandri<br>Graduate Student and<br>Student Instructor<br>Temple University | Writing Unit |
| Miss Peggy Felli<br>Graduate Student<br>Speech Therapist<br>Temple University | Speech Unit |
| Mrs. Betsy Stephens<br>B. A.<br>Barnard College | Math and Writing Units |
| Mr. George Haines<br>B. A.<br>Temple University | Math Unit |

Two professional writers were added to the basic staff to aid in the production of new material needed in the units. The dispatch with which they accomplished the writing tasks gave a lift to all curriculum production efforts and it wasn't until the materials began to be reviewed by the students themselves that the humor and style of the professional writers were found to be irrelevant to the interests of the almost one hundred per cent black student population of Simon Gratz High School. The two writers, both former members of the Time/Life, Incorporated staff, however, served the curriculum teams admirably in the origination and production of initial curriculum units (see Appendix B for original outline).

Modification Of Original Instructional Packages

The self-instructional packages outlined and prepared during Phase I of the research project were subjected to intensive examination by the principal investigator and by the director of research, Dr. Leslie Cramer, from Harvard University, who joined the project on November 1, 1966. Critique of these units was based on:

1. A better understanding of the student population, their abilities and deficiencies, through careful monitoring of the teacher revision phase initiated on January 23, 1967.

2. A concern that the materials were overly dependent upon reading, writing, and other verbal skills.

3. A commitment to explore audiovisual and manual devices as aids in teaching black student populations - a result of discusssions with John Culkin and Michael Dolas, two of the nation's outstanding consultants on visual media.

This review and the responses of student reviewers led to the recasting of some of the units, and the expansion of units to include stronger emphasis upon vocationally-oriented skills (the comprehension and successful completion of various job application forms, interview experiences, et cetera) and broader use of visual, auditory, and manipulative skills. Both objectives and organization of content were substantially altered (see pages 20 - 22 below).

Test records prepared by the new research director indicated that Gratz students were even more deficient in reading ability than their teachers would admit. Interviews with students elicited more negative statements about English classes than any other; it seemed that the negative conditioning and low self-esteem engendered in the conventional English class were substantial. Reading and writing skills were thus found to be extremely limited, and some students, when faced with a creative writing task that was impossible to manage, would carefully copy the pledge of allegiance from the large lettering on the wall.

The psychological barrier, therefore, to reading and writing was acute, making more necessary the device of starting the teaching of skills in these areas in a non-written format - a paradox not easy to resolve.

On the other hand, it was found in those first few months of close contact with the inner city youth that many if not most had learning potential that far exceeded their classroom performance. Writers and staff in a search for techniques that would improve their instructional units attempted to identify those few school programs that consistently turned the students on. Athletics, chorus, drama - all seemed to possess the essential elements:

1. They gave an immediate opportunity for the student to apply skills he'd learned with a good chance for reward for outstanding performance.

2. Feedback on the adequacy of individual effort was given by peer group members.

3. Active participation was possible for all students enrolled in the course.

4. Teachers became an ally or colleague in the learning process - their success depended upon the success of the student as much as the success of the student depended upon the teacher.

5. Learning was self-directed, self-disciplined, and peer-oriented.

Some of the subsequent changes in the curriculum units were directly related to the observation of these essential characteristics in on-going classes throughout the Philadelphia School District. Other major alterations were the result of proctor or teacher feedback sessions.

Revisions Resulting From Experienced Teachers Using Initial Text

The first major evaluation of the original instructional units resulted when experienced teachers taught small groups of five students each in the five subject areas selected. Each of these teachers, given the title of proctor, made daily logs of the success or difficulty students encountered in proceeding through the units. Based on these written comments, and not through tutorial interaction, the curriculum development teams set about to make their first order revisions in the units. The following comments were typical of those proffered by the teacher consultants.

MATH UNIT: The teacher proctor found that on divisions using the number line, general understanding was good and the number line appeared to be of value. In adding like fractions and reducing to lowest terms there was no trouble except with "word problems." These problems were written in a manner that might have held interest in a more conventional classroom, but were confusing to the Simon Gratz student - e.g., "Monday, Zelda bought a sweet potato pie to school in the morning. When she left in the afternoon, only 1/6 was left uneaten. While at school, Zelda ate 1/6 and Tim ate 1/3. How much did everyone else eat? (Hint: draw a sweet potato pie.)"

The students had difficulty reading the problem and were left wondering whether to add, subtract, multiply, or divide. They were unable to absorb what they had read.

Fraction problems involving the identity law, associative law, and commutative law proved difficult. The names of laws and their meaning was forgotten or confused.

The writer of the mathematics unit responded to each of these difficulties and attempted to remedy them with innovative additions.

Inadequate reading skills were seen as the major handicap in the math unit (as well as in the others). There was some question

as to whether the words in the problems or the long names of laws got in the way. If the arithmetic problem could be presented in non-verbal fashion, it was reasoned the student would be able to do it readily. A money board, and manipulative materials were added to the unit. A new outline of the mathematics unit objectives was subsequently forthcoming.

WRITING UNIT: Difficulties in the writing unit were closely related to problems of speech. As the proctors noted, the incorrect forms of speech sounded perfectly correct to someone who had been hearing and using them for years.

Out of the Negro ghetto had come a vocabulary so inventive but also so esoteric that outsiders, and even some older middle-class Negro teachers were lost. More than six hundred modern Negro slang terms were identified by consultants and staff (see Appendix H). They were woven into the writing unit, including the tapes and manuals. The units introduced a good deal of role playing and showed examples of good and poor job interviews. They played live tapes of politicians, radio announcers and physicians to demonstrate other varieties of in-group talk that deviated from standard English.

Simon Gratz was not alone in such instruction. Under a grant from the Ford Foundation, the Center of Applied Linguistics in Washington, D. C., has developed teaching material for eleven public schools in the District to help black students "straddle the cultures." A similar project was launched at the Lorton, Virginia, Youth Center, a District of Columbia correctional institution where Negroes outnumbered whites ten to one. Reportedly, Lorton complements vocational training with "standard English" speech classes to help its youth get and hold jobs (15).

Unit II, on filling in applications, went smoothly. Students commented that they had seen such questions on information blanks before, and the fictional persons in the story seemed familiar. Because the proctor observed that students were far more successful with material that simulated situations similar to the student's own and were geared to their interests, it was decided to rearrange the writing unit, placing Part IV, Slang and Standard English, at the beginning. This was the section of greatest interest and relevance according to the proctor's observations, and fitted in with the integrated approach to the speech, reading, and writing units. Writing unit objectives were subsequently altered and the unit reorganized.

READING UNIT: The proctor comments indicated that the first few reading tasks, partly because they were at the beginning, partly because of their brevity or relevance to the students' own lives, aroused interest and received uniformly good responses. Later sections began to drag, with students failing to retain content

or being unable to complete the questions. A greater emphasis was subsequently placed on the use of tapes for parts of the unit, and the more tedious sections were cut down or eliminated.

The lack of understanding and accommodation of the urban sub-cultures in the schools interferes with the student's ability to learn standard English and to read. White standards in speech discriminate against many minorities - perhaps most against the black student. Spanish-speaking students are clearly of another culture, but the Afro-American has a dialectical speech pattern close enough to mainstream English that instructors are likely to see the black student as lacking in intelligence rather than speaking a quasi-foreign language. William A. Stewart, of the Center for Applied Linguistics in Washington, D. C., is one of a growing number of linguists who regard the nonstandard varieties of Negro speech as a formal dialect, dependent upon learned linguistic rules as are the speech patterns of the whites. The living dialects can serve as a bridge to mainstream language skills and expedite the reading and writing of standard English. This strategy became fundamental in future revisions.

SPEECH UNIT: The teacher proctor reported that proficiency in the speech unit was hampered by poor reading skills. While there was interest in using the tape recorder, and each student learned to operate the machine, the natural diffidence at talking into a tape recorder was increased by inability to read the prepared script. Interest in the tape recorder was engendered by disc jockey, telephone operator, and sales lady material recorded on tape and which was presented along with questions about criteria for good speech, and the different purposes of speaking. Student involvement with the tape recorder was subsequently changed to emphasize the recording and translating of slang and indigenous speech, with students speaking freely in their own style and then working toward expanding that style to include conventional good English. It was felt that the only way to tackle the problems of spelling and grammar was to correct pronunciation in the writing unit. But the speech proctor demonstrated that a student who writes, "The door was lock," does so because that is the way he speaks, and to add the "ed" on paper is of no value unless the student has learned to say it and knows it belongs there.

One of the major problems in preparing the student for the job interview, a major section of Speech Unit III, was to give the young student a better perception of self. As the proctor suggested, a combined film and video taping experience should be developed along the lines of that used at Howard University.

At Simon Gratz, a film representing two samples of typical job interviews, with twelfth grade Negro students portrayed in the role of interviewee, was prepared (see film labelled "Job Interviews"). The individual student viewed the model interview and then through video taping the student responded to questions

posed by the proctor. The student recorded his live responses to the proctor's questions. He recorded as many responses as he thought necessary to produce a response that was satisfactory. The video tape recordings were then shown immediately to the student. In this manner, the student could build a better self-image and at the same time be highly involved with the simulated experience. (See sampling Job Interview Script in Appendix C.)

As will be described later, this visual recording technique was applied with great success in the training and motivation of a group of dropouts toward productive employment.

Summary Of Proctorially Revised Units

The basic strategy in the reorganization of the curriculum units was to promote the learning of basic skills (reading, writing, speech) and the shaping of attitudinal behaviors (self-understanding, aggressiveness, perserverance) by providing all of the learning experiences in a multi-media job search packet oriented to the needs and interests of the black student. Following Frank Riessman's dictates for materials that accentuate the lively, the visual, and the participatory forms of education, and taking a lead from their own observations of locally successful school programs, the Gratz writing and development staff sought to integrate film, role playing situations, audio and video tape, workbooks, and games into a self-instructional program that would provoke identification on the part of the student and be sufficiently stimulating to get the students to express themselves openly and assess their abilities realistically. In addition, the packet should provide practical information concerning strategies for job searching, job acquisition, and job maintenance - i.e., working on the job successfully. The intent was to equip the student with a flexible approach to the job market and open up the possibilities of building a stable income and a satisfying employment experience.

It was recommended by the staff and the proctors that while the material should be relevant to the student's present experience, it should not underestimate the student's desire and capacity for improvement. Yet, even with this fundamental tension in mind, the writers and consultants consistently selected job opportunities and work examples which seemed appropriate to low-income, educationally deprived youth, but which offered little more than a minimum salary schedule and had few promotional possibilities. The curriculum writers and the experts wanted to provide improvement models, but didn't want to idealize the occupational world or minimize the fundamental problems facing the students in the light of their inadequate education and their lack of occupational experience. As it was subsequently to be proved, staff, teachers, and consultants alike erred in the side of conservatism in resolving this conflict of goals.

The writing teams confronted this fundamental tension in the following areas:

1. Language: The familiar and colloquial versus the proper or standard form used in businesses.

2. Race: Given the intensified and changing attitudes toward race, how much should the material and job examples selected be geared to black youth, and the realities of opportunity in a white business community?

3. Occupational norms: What kind of work does the material implicitly establish as worthwhile, in terms of income, social status, and future. What assumptions does the material make concerning the aspirations, skills and experiences of the student as prospective job applicant?

It was concluded that the first-order revised material must clearly establish an image of the job search process as open-ended in order to maintain a balance between reality and aspiration; that the whole process be portrayed as one that is applicable to a variety of work possibilities at a variety of times and that it would help greatly if the material developed around the fictional characters of a young man and young woman who would be selected to provoke identification on the part of the student trainee with scenes sufficiently stimulating to get the students to express their feelings openly in discussions with their peers.

Accordingly, the concept of a multi-media training program gradually evolved with the focal point of the instructional units being two black high school students, Leroy and Charlene, portrayed as central figures in a film that would be designed to serve as a connecting link between the various units. The film (see Appendix D for the shooting script) would be separated into modules of fictional events in which Leroy and Charlene would get together, compete in hustling jobs, commiserate on job disappointments, and generally add a human touch to the otherwise dehumanized process of looking for a job. Each film module would introduce a workbook unit such as Hustling The Gig, or How To Fill Out The Job Application. By watching and observing these fictional students wrestle with realistic circumstances, it was expected that the student trainee would be better motivated and psychologically prepared for job searching. The workbook units would impart the information necessary to get on with the search and the film and associated stories on tape and accompanying film modules would serve as prime motivators for the students in training.

The revised instructional packages were to make use at each step of audio-visual aids, simulations, and materials the student was likely to encounter (want-ads, application forms, bus schedules, games, et cetera) in the job search. The Introduction and Course Outline which follow constitute the proctorial revisions of the instructional units and which were subsequently submitted and accepted by the U. S. Office of Education contract monitor and advisors:

Unit I: Job Search / how and where to locate job opportunities

Introduction. 16mm film showing young man without a job and subject to pressures from home, school, girl friend, et cetera.

Part I: Seeking A Job

(a) personal contact
(b) newspaper want ads
(c) employment agencies: public, private
(d) civil service: city, state, federal
(e) yellow pages of telephone book

Taped and written tests on hand: Reading unit I, complete

Learning aids: tapes accompanying printed stories in each category.

Unit II: Job Acquisition

Introduction. Scenes from a film produced by high school dropouts in Watts, showing young man being turned down at three or four job sites but landing a job through perserverance.

Additional learning aid: four sound tapes of how two Simon Gratz graduates found their jobs through personal contact, interviews, civil service, and want ads.

Part I: Travel Skills

(a) transportation

(1) use of Philadelphia Transport Company services (bus and trolley)
(2) private car
(3) walking
(4) maps: auto, street, PTC

Materials on hand: map game, Reading Unit II

Part II: Telephone Skills

(a) information from the directory
(b) use of information services
(c) initiating the conversation

Materials on hand: Speech Units and simulation tapes

Learning aids: Telephone Trainer

Part III: First Contacts

(a) the strategy of speaking correctly
(b) need for promptness
(c) need for good grooming
(d) telephoning for appointments
(e) presentations in person

Materials on hand: Speech Units I, II, III

Simulated filmed interviews and taped simulations

## Unit III: Filling Out Application Blanks And The Job Interview

Part I

Materials on hand: Writing Unit II and Magic Slate

Part II: Other Forms And Vocational Terminology

(a) practice in understanding and filling out such forms as medical record, social security, unemployment compensation, et cetera.
(b) information (in film, tape, and story form) on job benefits, seasonal employment, job specifications, union membership, et cetera.

Materials on hand: Writing Unit III

Part III: Handling Job Interviews

Materials on hand: Speech Unit III, complete

Simulated filmed interviews

Simulated personal interviews on tapes

## Unit IV: Job Maintenance

Once a job has been found, the new employee must know what to expect and how to get along with fellow employees. A series of dramatized stories and a personality questionnaire introduce the problems.

Part I: Evaluate Yourself

A self-administered test to rate your chances of succeeding on-the-job.

Part II: Employee Responsibility

Short stories from the McGraw-Hill series on teenage employment problems (used with special permission).

Part III: Payroll Data

(a) deductions
(b) exemptions
(c) overtime
(d) bonuses, et cetera

Materials on hand: McGraw-Hill story

Writing Unit III

Mathematics Unit

Part IV: Measuring And Manipulative Skills

(a) review of addition, multiplication, and subtraction
(b) handling fractions
(c) measuring with ruler, calipers, and micrometer
(d) decimals and transformations from English to decimal notation systems
(e) interpreting and drafting graphic forms

Materials on hand: Math and Manipulative Skills Units

Consultant Workshop

Prior to proceeding from this first-order revision stage into the tutorial cycles for further modification and iterative testing of the instructional units, the Principal Investigator invited four consultants to review the work of the staff and make further recommendations for alterations. Using the model of commercial publishing practices, these consultants fulfilled the role of subject matter experts called upon to validate a new series of texts. Their advice was not used, however, to modify the plans for first-order revisions, as this would have abrogated the original research design.

The following consultants were called into the Simon Gratz Center and in a two-week workshop session thoroughly reviewed the substance and objectives of the instructional units as prepared to April, 1967.

DR. CHARLES J. HURST, JR.
Director, Speech Department, Howard University.
Dr. Hurst had developed a "standard English" program at Howard for the remedial instruction of undergraduate students. This program included sets of tapes with jazz backgrounds and "cool talk" to be translated into standard English by the undergraduates. Dr. Hurst is a consultant to the U. S. Department of Labor and a member of the Board of the American Junior College Association.

DR. MICHAEL SPOCK
Director of the Children's Museum of Boston.
Dr. Spock, a graduate of the Harvard School of Education, has established a national reputation for his participatory educational programs at the Children's Museum. In a recent review in NEWSWEEK MAGAZINE, Dr. Spock was given recognition for his media packages that taught social studies and elementary sciences by means of manipulative objects, film, kits and tapes. He is also an expert on environmental effects on learning.

DR. HELEN ROBINSON
Director, Remedial Reading Laboratory, University of Chicago.
Dr. Robinson has worked with inner city young people for approximately twenty years, both as director of reading clinics and as research specialst in the field of reading. Her reading laboratory utilized the tutorial model for eliciting symptomatic behavioral problems of young, black readers.

MR. DAVID SHEPPARD
Scientific Resources, Incorporated.
Mr. Sheppard founded the Chicago Compass Theatre and was a pioneer in improvisational theatre and theatre games. Currently, he directs the Community Makers Association, a program for disadvantaged youth involving games, newspaper production, and community surveying. Mr. Sheppard pioneered the use of role playing and video taping techniques for job interview training.

## Summary Of Workshop Recommendations

Of major concern to the consultants was the divergency of objectives - much of the material in the reading and writing units seemed designed to tap the creative potential of students or to remedy, in a few weeks, a lifetime of bad habits in grammar, spelling, pronunciation, et cetera. It was felt that neither aim was realistic, nor did either conform to the stated goals of the project.

As a result of this confusion of objectives, the writers continued to generate highly interesting materials that were above the heads or outside the understanding of the students, and the students did not have a clear grasp of what they were expected to achieve.

In his report on curriculum evaluation, Scriven warns, "it is necessary that the goals . . . formulated should be regularly reexamined and modified in the light of divergencies from them that have arisen during the developmental activities . . . (16)." Otherwise, he states, there is danger of arriving at a situation where "the creative urge has outdistanced reality restraints."

The Simon Gratz project in fact had generated much written material that, while highly creative and of interest to the middle-class editors, was subsequently shown to be inappropriate to the student population in question.

Recommendations were made that each unit should be examined to make sure that it was well organized in terms of the relationships between each section and the relation of each section to the objectives, and that the relevance to the students was continually evident. Secondly, all material should be evaluated to determine whether it was being appropriately administered in terms of the nature of the material and the learning requirements of the student.

The consultants enthusiastically endorsed the new organization of the units and concurred that helping the student to learn the skills necessary for obtaining a job should be the focus of the units. (Substantive transcripts of the consultant's remarks were distributed to staff.) If making the students employable is the chief objective, all materials obviously related to this objective should be merged into a three-part program: job search, job acquisition, and job maintenance. It was felt that placed within this framework, much of the existing materials would be appropriate.

Research Design And Recommendations For Tutorial Procedure

In the same manner that an appraisal of the divergencies in instructional objectives was gained through the April, 1967, workshop, a review of the research design and methodology was undertaken during a retreat at Brooks Foundation headquarters. This retreat involved as special consultants Dr. Richard de Mille, Dr. R. L. Hunt from the Foundation staff, and Dr. Adele Davidson from the University of California. Of immediate concern to the consultants were the procedures for daily tutorials to be followed during the summer, but a review of the originally proposed research methodology was also undertaken in light of the Spring's experience and changes were recommended and subsequently approved by the U. S. Office of Education.

The research design consultants reexamined all of the events leading to the tutorial phase of the research (see Figure One). They found the instructional materials and the machine listings of student experimental subjects, as well as pre- and post-tests designed for the final research phase, to be generally in order and recommended that the project directors proceed according to the original design - but with two exceptions.

The pre- and post-tests for the measurement skills units called for alternate forms. However, it was pointed out by the consultants that there was no need to have alternate forms because a full

| Task | Personnel | Week Ending 4/3 | 4/10 | 4/17 | 4/24 | 5/1 | 5/8 | 5/15 | 5/22 | 5/29 | 6/5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Machine Listing of Sophomore Students--For Scheduling and Initial Data Evaluation | | COMPLETE | | | | | | | | | |
| Specify Listing categories | | COMPLETE | | | | | | | | | |
| Repair Coding sheets | | " | | | | | | | | | |
| Collect Individual data | | " | | | | | | | | | |
| Keypunch, sort and list | | " | | | | | | | | | |
| Proofing of machine list. | | " | | | | | | | | | |
| Avail. for initial schools | | " | | | | | | | | | |
| Initial data sort | | " | | | | | | | | | |
| Schedule Students for Proctored Studies | | | | | | COMPLETE | | | | | |
| Speech Study Area | | | | | | | | | | | |
| Instruction Booklet | | | | | | | | | | | |
| Unit I, Speech Standards | | (---------- | ---------- | ) | | | | | | | |
| Unit II, Speech Skills | | | | (---------- | ---------- | ) | | | | | |
| Unit III, Job Interview | | | | | | (------- | ) | | | | |
| Film Production | | | (---------- | ---------- | ---------- | ---------- | ) | | | | |
| Eval.of Speech Progress | | | | | | | (---------- | ) | | | |
| Workbook Tests | | | | | COMPLETE | | | | | | |
| Criterion Text Dev. | | (---------- | ---------- | ---------- | ---------- | ) | | | | | |
| Begin Tutorials | | | | | | | | (---------- | ---------- | ---------- | |
| Preparation of Proctor Forms/Debriefing Aids | | | | | (---------- | ---------- | ---------- | ) | | | |

Figure 1. / PERT Diagram Of Events Leading To The Summer Tutorial Phase Of The Research

| Task | Week Ending 4/3 | 4/10 | 4/17 | 4/24 | 5/1 | 5/8 | 5/15 | 5/22 | 5/29 | 6/1 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Reading Study Area** | | | | | | | | | | |
| Instruction Booklet | COMPLETE | | | | | | | | | |
| Reading Maps | COMPLETE | | | | | | | | | |
| Printed Cards | COMPLETE | | | | | | | | | |
| Workbook Tests | COMPLETE | | | | | | | | | |
| Game Material Production | COMPLETE | | | | | | | | | |
| Additional Material Prep./Tutorial | | (---------- | ---------- | ---------- | ---------- | ---------- | ----------) | | | |
| Criterion Test Eval. | | | (---------- | ---------- | ---------- | ----------) | | | | |
| Scheduling of Students | COMPLETE | | | | | | | | | |
| Begin Proctored Study | | | | (---------- | ---------- | ---------- | ----------) | | | |
| Begin Tutorials | | | | | | | (---------- | ---------- | ---------- | ---------- |
| **Writing Study Area** | | | | | | | | | | |
| Instruction Booklet | COMPLETE | | | | | | | | | |
| Unit I, Letter Writing | COMPLETE | (ELIMINATED FROM REORGANIZED UNITS) | | | | | | | | |
| Point Evaluation | COMPLETE | " | " | " | " | | | | | |
| Workbook Tests | COMPLETE | " | " | " | " | | | | | |
| Writing of Material | COMPLETE | " | " | " | " | | | | | |
| Unit II, Applications | COMPLETE | | | | | | | | | |
| Unit III, Other Forms | COMPLETE | | | | | | | | | |
| Unit IV, Creative Writing | COMPLETE | (ELIMINATED FROM REORGANIZED UNITS) | | | | | | | | |
| Slang Material | COMPLETE | " | " | " | " | | | | | |
| Writing Skills | COMPLETE | " | " | " | " | | | | | |
| Workbook Tests (I-IV) | COMPLETE | | | | | | | | | |
| Additional Material Prep./Tutorials | | (---------- | ---------- | ---------- | ---------- | ---------- | ----------) | | | |
| Criterion Test Evaluation | | | (---------- | ---------- | ---------- | ----------) | | | | |
| Scheduling of Students | COMPLETE | | | | | | | | | |
| Begin Proctored Study | | | | (---------- | ---------- | ---------- | ----------) | | | |
| Begin Tutorials | | | | | | | (---------- | ---------- | ---------- | ---------- |

| Task | Week Ending 4/3 | 4/10 | 4/17 | 4/ 4 | 5/1 | 5/8 | 5/15 | 5/22 | 5/29 | 6/1 |
|---|---|---|---|---|---|---|---|---|---|---|
| Mathematics Study Area | | | | | | | | | | |
| Instruction Booklet | COMPLETE | | | | | | | | | |
| Workbook Questions | COMPLETE | | | | | | | | | |
| Schedule Phil. Math Diagnostic Exam | COMPLETE | | | | | | | | | |
| Additional Tutorial Materials | | | | | (---------- | | ) | | | |
| Generalized Problem Decimal Numbers | | | (---------- | | | | ) | | | |
| Proctored Sessions | | | (---------- | | | | ) | | | |
| Criterion Test Eval. | | | (---------- | ) | | | | | | |
| Scheduling of Students | COMPLETE | | | | | | | | | |
| Begin Proctored Study | | | (---------- | | | | ) | | | |
| Additional Material/Support Tutorials | | | (---------- | | | | ) | | | |
| Begin Tutorials | | | | | | | (---------- | | | |
| Manipulative Skills Study Area | | | | | | | | | | |
| Unit I, Measuring | | | | | | | | | | |
| Pre-Test Prep. | COMPLETE | | | | | | | | | |
| InstructionaBooklet | COMPLETE | | | | | | | | | |
| Supporting Equip. | | (---------- | ) | | | | | | | |
| Workbook Tests | COMPLETE | | | | | | | | | |
| Unit II, Spatial Relations | | | (---------- | ) | | | | | | |
| Instruction Booklet | ---------- | ) | | | | | | | | |
| Supporting Equipment | | | (---------- | ) | | | | | | |
| Workbook Tests | | | (---------- | ) | | | | | | |
| Proctored Sessions | | | | | (---------- | ) | | | | |
| Begin Tutorials | | | | | | | (---------- | | | |

semester's course of study would separate the administration of the tests. The requirement for intra-test reliability between equivalent items had not been raised in the original design and was recommended by the test designers for this particular instructional workbook. As a result, the redesigned tests contain two sections that make it possible to correlate part scores and achieve a reliability coefficient for the tests as a whole.

A second change was recommended by the consultant team. The original proposal called for an experimental comparison of three methodologies for the constitution and validation of self-instructional materials for disadvantaged students. These procedures were outlined as follows:

1. Analysis and modification of instructional materials based upon the recommendation of a workshop committee comprised of experienced school staff personnel.

2. A first-order revision based upon an analysis of study item responses as well as upon item analysis of test performance.

3. Revisions and validation of instructional materials through iterative cycles of tryout and revision in tutorial sessions involving a learner, tutor, and observer analyst.

The hypothesis under test required a comparative study of test results administered before and after students had learned with materials modified under the three conditions outlined above. The prediction was that tutorially revised instructional material would result in significantly more learning than study with instructional units modified and improved under the workshop conditions or under conditions constituting the once-only revision process based upon the proctor's recommendations (following one semester's use of the units under small classroom conditions).

The consultants found that the first-order revision of the original workshop units created under proctoring conditions required substantial reorganization of instructional materials. The quandary facing the research design consultants during the review of the research methodology was that the conceptual goals of the instructional units prepared under workshop conditions (see original goal statements in Appendix A) were no longer the equivalent of the conceptual goals of the self-instructional materials which had resulted from the first-order revision process (see goal statements, pages 20 - 23. As a result, it was recommended by the special consultants that the research design be altered to test two independent variables - one experimental group working with first-order revised materials

and the other with the tutorially revised units - and expanded to incorporate measures of motivation for the different experimental groups. Agreement was sought and obtained from the U. S. Office of Education for these changes.

All other conditions described in the research design were kept the same. As described earlier, the first-order revisions were based upon the recommendations of experienced teachers presenting the originally conceived instructional units to a selected group of students as well as upon analysis of the students' responses to diagnostic questions scattered throughout the units of instruction. The method of repetitive tutorial revision of instructional units involved the introduction of the student himself into the revision procedures. A tutor had the responsibility of questioning the student and eliciting as much verbal behavior from the student as possible. When difficulties were encountered, the tutor tried a variety of teaching strategies until the student indicated an understanding of the once difficult point. The instructional units were to be repeatedly altered and improved until all tutorially administered students had proceeded through the units with few errors and with no further questions. These units then comprised the tutorially revised instructional program to be compared with the units revised under proctoring conditions only.

The actual tutorial and revision cycles proceeded according to the schematic design set forth in Figure Two. In the tutorial phase the materials resulting from the first-order revision were iteratively presented to twelve students in groups of two. After each presentation, the two tutors in each of the two tutorial rooms met together with the writer-editor in charge of revision of the unit, and the trained observer who was also participating in the tutorial sessions. This review session is designated $R_1$. The four of them determined changes based on problems encountered in presenting the material as originally prepared. An hour later, a second session of tutorials was tutored, again followed by revision ($R_2$). The third session of tutorials (period 6) followed the lunch hour. Periods 7 and 8 were used to decide on permanent revisions based on the day's work. In addition to the tutors, writer, and observer the writer-coordinator sat in on this session, so that when the agreed upon revisions were being typed and proofed for xeroxing the writer-coordinator was available the next morning to see that all agreed upon revisions were properly executed.

Starting at period 4 on the second day, the revised material as agreed upon the previous afternoon was presented to a substitute group of four students in three proctored sessions. This served as a check of the final revision to ensure its effectiveness in meeting the criterion of no verbalized conceptual difficulties. This approach also kept a group of standby students

prepared, so that if one or more students dropped out of the tutored groups for any reason (illness, accident, lack of motivation, et cetera) a substitute could be drawn from this standby group. The observer of the substitute groups used the sixth and eighth periods (designated with an S) to survey notes of the proctored sessions and make recommendations for further changes. During the latter part of the eighth period the observer met with the writer-editor and recorder as well as the writer-coordinator to report on any problems encountered with the material at that point of development.

SCHEMATIC DESIGN FOR DAILY TUTORIALS, SUMMER, 1967
FIGURE 2.

| | | PERIODS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 9:00 | 10:00 | 11:00 | 12:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 |
| DAY | TUTORIAL ROOM # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| 1 | 1<br>2 | 1-2<br>3-4 | $R_1$ | 5-6<br>7-8 | $R_2$ | L | 9-10<br>11-12 | $R_3$ | $R_3$ cont. | |
| 2 | Substitutes in Proctorials | Typing & xeroxing $R_3$ from previous day | | | 13 $R_3$ 16 | 17 $R_3$ 20 | Scoring | 21 $R_3$ 24 | Scoring | |

The students were designated as evaluators rather than subjects and were paid $1.00 a session for helping to evaluate the materials. In addition, they were paid a bonus of $.50 a session ($10.00 for the twenty sessions) for completing the twenty sessions.

Orientation And Training

The first two weeks of the Tutorial Phase of research were used for training the tutors and the observers. During the first week, tutors and observers were familiarized with the instructional units and received intensive training in communications skills. An unstructured workshop situation was developed to provide a climate of maximum freedom for personal expression, exploration of feelings, and interpersonal communication. This intensive group experience was initiated with a twenty-four hour group encounter experience aimed at improving the relations of participants and increasing group interaction and involvement with the project. It was hoped that in the constructive psychological climate thus engendered, group members would become less inhibited, would express feelings both positive and negative, and would learn from one another in

such a way that the experience was carried over into their relationships with the students in the tutorial situation. The second week of observer training, the recorder and tutors continued instruction in the content of the instructional units. The following week, the tutors and students began the sessions.

## Coding Procedure

The coding task of the observer can be described in three steps. During the actual tutorial sessions, the observer monitored the interaction between tutee and tutor and tape recorded the verbal exchange. From the recordings, IBM cards were to be punched reflecting the binary content codes transcribed from the tutorial interaction sessions giving such information as number of verbal responses, kind of question raised, tutor reaction, et cetera. A third step, followed after the coding of the type of conceptual problem encountered, was to describe in terms arising from the instructional material itself, the particular problem the student was having on a copy of the text itself. Later, in the evening's review session, the observer standardized the descriptions of the tabulated conceptual difficulties and reported to the tutors and the writers the objective results of his observations. The tape recordings are also used for specific problem analysis. His tabulations were then to be turned over to the key punch operator and cards processed for tabulation and arrangement into hierarchical classifications.

## Selection Of Student Population

The drawing of matched samples of students for comparative study of the first-order revised units and the tutorially revised materials following the summer tutorial sessions was carred out in the late Spring, even though the student population would not be tested until the following Fall. This earlier processing was necessitated by the time required to process and sort the data and to avoid using any students in the summer's tutorial sessions who might be selected for the final research phase. In the Fall, two regular courses using the revised materials were introduced into the curriculum of the Simon Gratz High School. One course used the proctorially revised instructional program and the second the tutorially revised program.

The following method was devised to identify students for use in this final phase of the research:

1. First the data listed on the code sheet (Figure Three) was filled in for every non-academic ninth grade student in Simon Gratz High School.

2. IBM cards were punched from these code sheets for all students (1100).

FIGURE 3. / SAMPLE CODE SHEET

**Ninth Grade Class Gillespie Jr. High**

**1966-1967 - School Year**

31

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | A | V | E | N | P | O | R | T | | R | O | B | E | R | T | | | | | | | | | |

| Col.# | Punch | Information |
|---|---|---|
| 31 | | ] |
| 32 | | ] Student I.D. Number |
| 33 | | ] |
| 34 | | ] |
| 35 | | ] |
| 36 | | |
| 37 | | ] Last 2 digits of |
| 38 | | ] room number book |
| 39 | 1 | ] Month of Birth |
| 40 | 2 | ] 01 t0 12 |
| 41 | 1 | ] Day of Birth |
| 42 | 8 | ] 01 to 31 |
| 43 | 5 | ] Year of Birth |
| 44 | 2 | ] 48 to 50 etc. |
| 45 | | |
| 46 | 1 | Sex 0=Female 1=Male |
| 47 | | |

| Col.# | Punch | Information |
|---|---|---|
| 48 | 1 | ]Attendance - Days |
| 49 | 5 | ]Absent 1966 to ]December ] |
| 50 | 0 | ] |
| 51 | 8 | ]I. Q. Score ] |
| 52 | 2 | ]070 to 111 etc. |
| 53 | 1 | ]Reading Score |
| 54 | 5 | ]"R" 1 to 21 |
| 55 | 1 | ]Arithmetic Fund |
| 56 | 4 | ]"A" 1 to 21 |
| 57 | | Course (see code) 0 - 9 |
| 58 | | English Period 1-9 |
| 59 | | Math Period 1 - 9 |
| 60 | | Commerce Courses 1 - 9 |
| 61 | | Shop Homemaking 1 - 9 |
| 62 | | |
| 63 | | |
| 64 | | |

Home Address 2338 N. Bowser St. Contact _____

Telephone No. BA8-3286 Relation _____

Other Phone _____ Parent or Guardian's Employment

Other Address Daisy Ellis - aunt 2334 N. 12th BA9-7174 _____

Tel. at Work _____

CS 3
May 26, 1967

3. The IBM cards were sorted on the attendance column to eliminate all students who were absent ten times or more in the first thirty-six days of school.

4. All cards were sorted on course column to eliminate academic program students. This was requested by the school authorities.

5. Cards were sorted on sex column to give separate boys and girls decks.

6. The girls and boys decks were then sorted separately on each of the columns dealing with IQ, reading scores and arithmetic scores. Since there are roughly three girls to each two boys in the tenth grade population, each of the groups of five were divided, three girls to two boys. In each of the subject areas there were to be twenty students (four classroom periods constituting groups of five each).

7. The IQ, reading and arithmetic scores of the entire female population of the tenth grade were each arranged in ascending order from lowest to highest IQ. These first and second tertile (point at which one-third lowest is below upper two-thirds and point at which upper one-third is above lower two-thirds) were then used to separate the female population into Low, Medium and High rank on each score.

8. The IQ, reading and arithmetic scores of the entire male population of the tenth grade were arranged in ascending order on each of the three test scores mentioned before. Since only two boys were needed in each group, a mid-point was found in each of their scores where one-half fell below the median and one-half above for each of these scores and designated Low and High in each case.

9. In the case of the Manipulative Skills Unit, there were more boys than girls in shop courses (at least during the periods a sample was to be drawn) so the preceding procedure was reversed giving three boys ranked low, medium, and high to two girls ranked low and high.

10. For the Manipulative Skills study group sample, the cards were sorted to find all students in shop periods one, two, seven and eight. When these students were arranged in I. Q. from low to high, a printout similar to that seen in Figure Four results.

1 2 4 JQ 5

ROOM 309

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ABNER MATTIE | 0001 | 00015 | 09032151 | 0 | 02 | 088 | 13112402 |
| ABNEY GLENDA | 0002 | 00200 | 09100551 | 0 | 00 | 102 | 17 1419367 |
| ABNEY SANDRA | 0003 | 00025 | 09041650 | 0 | 04 | 093 | 17 14697 5 |
| ABRAMS GERALD | 0004 | 00160 | 09020152 | 1 | 02 | 093 | 16 13130 6 5 |
| ADAMS BERTHA | 0006 | 00100 | 09092451 | 0 | 02 | 088 | 12112162 |
| ADAMS RONALD | 0007 | 00270 | 09070650 | 1 | 07 | 100 | 17141167 |
| ADDISON BARBARA | 0008 | 00340 | 09022351 | 0 | 01 | 100 | 13 |
| AKERS RICHARD | 0009 | 00440 | 09092151 | 1 | 02 | 100 | 14 |
| ALEXANDER ARTHUR | 0010 | 00495 | 09011752 | 1 | 07 | 100 | 14 |
| ALEXANDER LORETTA | 0011 | 00500 | 09072750 | 0 | 01 | 088 | 12 |
| ALLEN GERALDINE | 0013 | 00915 | 09090351 | 0 | 03 | 088 | 12 |
| ALLEN JERALD | 0014 | 00953 | 09040650 | 1 | 09 | 076 | 12 14 |
| ALLEN PAUL | 0015 | 01000 | 09011652 | 1 | 06 | 110 | 18 15662 |
| ALLISON GERALDINE | 0016 | 01120 | 09012151 | 0 | 00 | 088 | 12 |
| ALSTON ARNETTE | 0017 | 01140 | 09093050 | 0 | 36 | 088 | 12 |
| ALSTON MELVIN | 0018 | 01330 | 09040651 | 1 | 05 | 088 | 12 |
| ANDERSON CARL | 0019 | 01380 | 09052352 | 1 | 02 | 088 | 12 |
| ANDERSON PAMELA | 0020 | 01635 | 09120251 | 0 | 17 | 105 | 17 |
| ANDERSON PATRICIA | 0021 | 01690 | 09071351 | 0 | 03 | 094 | 15 |
| ANDERSON RONALD | 0022 | 01795 | 09092251 | 1 | 01 | 088 | 12 |
| ANDREWS JESSE | 0023 | 01995 | 09092150 | 1 | 02 | 088 | 12 |
| ARCHIE GLORIA | 0024 | 02195 | 09121051 | 0 | 02 | 100 | 15 |
| ARNOLD FREDERICK | 0025 | 02310 | 09062550 | 1 | 10 | 100 | 15 |
| ARTIS KENNETH | 0026 | 02400 | 09020550 | 1 | 28 | 100 | 17 |
| ARTIS SHERRY | 0027 | 02425 | 09011252 | 0 | 01 | 088 | 10 |
| ATHY VICTOR | 0028 | 02575 | 09041251 | 1 | 10 | 100 | 16 |
| ATKINS DWIGHT | 0029 | 02610 | 09021350 | 1 | 09 | 088 | 12 |
| ATKINS JIMMY | 0030 | 02620 | 09022050 | 1 | 02 | 088 | 11 |
| ATKINSON ALICE | 0031 | 02625 | 09121551 | 0 | 08 | 088 | 13 |
| AUSTIN ARTHUR | 0032 | 02730 | 09102149 | 1 | 13 | 100 | 13 |
| AUSTIN BRENDA | 0033 | 02775 | 09012252 | 0 | 00 | 088 | 17 |
| AUSTIN GAYLE | 0034 | 02850 | 09042350 | 0 | 24 | 088 | 15 |
| AUSTIN MARCIA | 0035 | 02865 | 09022652 | 0 | 03 | 115 | 18 |

079
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13 086
088
093
073
085
107
077
080
075
076
076
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106
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076
073
088
090
093
083
094

Andrews, Bernice A 01900 01 3352 0 00102 14 12 4 8500

AT

FIGURE 4. / SAMPLE PRINT-OUT SHEET

Matched groups - i.e., low on IQ, reading, and arithmetic are drawn for both the proctored sessions and for the tutorial sessions at the same time. Two substitutes were drawn for each preferred student in each session in the event that some were absent or suspended. Then the cards of those selected from the print-out were manually withdrawn from the IBM card deck and the remaining deck was put back with those cards of students not having shop - or homemaking in the case of girls - during periods one, two, seven, and eight.

11. The entire deck, except for those just withdrawn, was again sorted for students in math classes during the four periods of the days which they were desired.

12. Similar sorting and arranging followed for samples to be tested on the Job Search, Acquisition, Application and Interview units. Descriptive characteristics of the student populations are set forth in the Results section which follows.

Environmental Setting

It was the strong recommendation of Dr. Michael Spock during the April workshop that the environment for the tutorial sessions be a relaxed, peer-dominated one, rather than the existing school room environment with its negative associations. Accordingly, arrangements were made for the tutorial phase of the project to be conducted in six rooms of the Nicetown Boys Club. These rooms were furnished in the style of a coffee house, each with chairs and sofas, and coffee and doughnuts available. In addition, the recreational facilities of the Boys Club, ping-pong tables, pool tables, juke box, dance floor, et cetera, were open to the tutees, and served to motivate them to arrive on or before time, and to stay on after their sessions.

Student Feedback And A New Research Program

During the Spring and Summer months, seventy-two black high school students from the Simon Gratz High School were involved in either tutorial or proctorial sessions. Twelve students became tutees in the four major study areas and were encouraged as they cycled through the materials to evaluate both the content and the appropriateness of the instructional strategies.

Feedback took a surprising twist from three of the four workshop groups. Those students working on the fourth unit in the measuring and mathematical skills areas responded according to the expected

procedure. But those students working on the other three units which dealt more directly with the problems of seeking and finding employment took strong exception to what seemingly was a basic strategy of shaping behavioral and attitudinal viewpoints toward "dead-end careers" for black students. The complaint of the militant students was that the units prepared by the Center staff were patronizing at best since they, the staff, had such a low estimate of the career potential of the Simon Gratz student. They took issue with those materials that spoke of jobs as gas station attendant, bus boy, filing clerk, et cetera, and felt the units didn't get at the heart of the matter which was, in their estimation, to expose and deal with the realities of the psychological barriers to job seeking for black and Mexican/American students. Their arguments were summed up in a statement presented to the Center staff about four weeks into the program by Bill Anderson, a black playwright and journalist, who had become spokesman for the dissident students and later the author of much of the creative material to emanate from the project:

Introduction

Looking for work is a threatening proposition for almost anybody, even for the normal, white job seeker who goes out to look for work armed with some information and a background that most of us take for granted. Some of these are hard characteristics, like possession of specific skills or training, experience, adequate education, a list of references, no arrest record, and the like. Other qualities are less tangible, such as motivation - the kind that comes from the belief that the job seeker will eventually find work, and also the motivation that exists as a result of the pressure of peers and relatives who expect that the job seeker will find work eventually. The possession of certain information is another such quality important to job hunting, both of the cultural know-how variety and of a more specific nature - concrete knowledge of job openings, for example, from friends and relatives.

Job Hunting With The Black Student's Syndrome

If, however, the job seeker doesn't possess these characteristics, then the job hunt becomes very different. Consider the situation that faces the typical black student from a ghetto area. He possesses all of the typical "flaws" in his job history, which make it virtually impossible for him to conduct an effective search for work. In fact, the profile of the black job seeker, male, ranging in age from about seventeen to twenty-one, typically looks as follows:

1. Inadequate education: A huge percentage of this population (one-third) do not have high school diplomas at all. Even when they do posses high school diplomas, they often do not have relevant skill training of a vocational nature with which they can overcome their lack of educational experience.

2. Arrest records: In a study conducted in San Francisco, it was found that between half and two-thirds of the applicants like those described above, possessed a police record of some kind.

3. References: These applicants normally do not possess any pool of references which demonstrate some previous attachment to school or the job market.

4. Motivation: It is hardly necessary to state that the motivation of black, urban job seekers is much less highly developed than that of more fortunate, white job seeking students.

The lack of motivation and abundance of other inadequate characteristics work against the student in a number of ways. In the first place, the example of the ghetto does not lend any support to the job seeker's belief that he will eventually be able to find work. When you consider that in many parts of the ghetto, particularly those of the urban North and Midwest, you have not only people who do not know many peers who have possessed sustained, profitable occupational lives, but in fact, you have many cases in which chronic unemployment is in the second or third generation.

There is almost no belief in the mind of the individual applicant that he will be able to get a job. In the second place, the nature of the employment open to the black job seeker is not the kind that makes for his being particularly interested in entering the world of work in the first place. Certainly, it is almost undeniable that the job history of many, many black urban males is one of low paid, under-employed, and intermittent employment. This, therefore, does not tend to provide the applicant with the necessary motivation to begin at a low level and work up. He knows that the opportunity simply does not occur for him.

All together then, the state of mind in which a black job seeker goes out to hunt for work is very different from that of the white job seeker. As we have seen, it

can best be described in terms not of occupational or economic characteristics, but rather in terms of emotional states: fear, lack of motivation, and ignorance.

Naturally, because of all the factors listed above, as well as the threatening nature of hunting for work itself, most black job seekers will naturally be more apprehensive and fearful of the job hunting process than their white counterparts would be. This outlook is often fatal, because in the job world as well as in American society generally, nobody likes a loser.

Rationale For A New "Job Search Package" For Black, Urban Job Seekers

The rationale or approach to this newly proposed study is that a more effective way to show black students, and the hardcore unemployed generally, how to devise techniques for successful job hunting begins with a more psychological orientation than has been adopted in the past. This is not to mean that the proposed study depends heavily on counselling or individual guidance on job seeking problems. The sort of job counselling that leans heavily on the development of career ladders, for example, is not likely to be very effective. Black job seekers do not believe that a career is possible for them based on the experiences of their friends and relatives. Or to take another example, the traditional agencies, such as the Depart- of Employment, consider that the job process begins with the appearance of the applicant in a job office or an employment center, or with the filling out of an application. Actually, for the black job seeker, the process often begins at home when he sits in his room deciding if he can afford to need the job badly enough to gamble his self-image against the almost certain rejection he can expect to encounter. For this job seeker, therefore, his appearance in an employment office or at the interview table is very often the end of the job seeking process, and not the beginning.

If we consider, then, that the job seeking process has only to do with such matters as work applications, interviewing techniques, knowledge of career planning, and the like, we run the risk of being insensitive to the basic needs of the black, urban job seeking student. Because the primary question for him is not how to fill out an application, but rather how to convince himself that he has a chance or desire to get a job in the first place.

A New Proposal

This proposed study takes the position then that a truly relevant course of instruction on how to get a job for the black student, and the hardcore unemployed, would begin with psychological factors such as those mentioned above . . .

The student evaluators employed by the Brooks Foundation take the position that a truly relevant course of instruction on "How To Get A Job" should deal first with the problem of building self-esteem, including pride in one's race and culture, and offer opportunity for creative self-expression, self-knowledge, and self-direction. Once this personal sense of well-being is achieved then the student can be expected to show an increased readiness for learning and a change of attitude toward searching for work.

In pursuit of these goals and in opposition to the continued development of a course in dead-end careers, the student evaluators of Simon Gratz propose a performing arts project as an innovative approach to career development and entrepreneurial opportunities. By implementing a film-making project for high school dropouts - followed by a tour of the film produced by the participants - the students suggest that many of the psychological factors listed above could be overcome. This special project would include a direct grant to the film-making group to meet the continuing costs of production and salaries and arrangement of travel opportunity for the members of the film-making group outside the community of North Philadelphia. The professional staff of the Simon Gratz Center, particularly Mr. Don Bushnell, the project director, would be expected to assist in the administration of the project and the securing of appointments for film screenings, but method of operation, goals, and the content of film and lecture would be made only by the participants themselves . . .

Confronted with this Magna Carta, the staff of the Simon Gratz Tutorial Center agreed to facilitate such a project (within a project) if the student evaluators would consent to completion of their evaluation of the Job Search, Job Interview and Application, and Job Acquisition materials, which they did handily.

A number of virtues seemed to be apparent in the consideration of the arts as a vehicle for approaching vocational choice and career development. The tendency of the vocational schools and guidance counselors in particular had been, as observed by the Tutorial Center staff, to press non-college youth into certain available vocational outlets before the students had begun to recognize their interests and abilities, since they were late maturers in the educational/vocational marketplace. Apparently

the student evaluators and their college student tutors had also sensed this premature processing of students and sought for their peers outside the school a new chance for self-actualization. It was interesting to note that these students did not propose the special project for themselves nor did they seek to gain any personal profit from the undertaking.

The Arts As Vocational Education: A New Phase Of Research

Following the framework for research proposed by Dr. Tumin, and maintaining the focus upon the broader concerns of vocational training and job acquisition, a project in film-making, curriculum design, and personal development was undertaken with twenty teenage members of a fighting gang in North Philadelphia whose turf constitute the areas bounded by Twelfth Street and Oxford Street. The project was coordinated out of the Simon Gratz Tutorial Center and coordinated by Harold Haskins, a former gang worker for the city of Philadelphia. Film-making was taught by Phil Gallighan, a professional cameraman with the National Broadcasting Corporation in Philadelphia.

Three approaches to introducing the film-making activity to the target population suggested themselves. One approach would involve a brief orientation to the craft, followed by immediate individual experience with 8mm cameras which require little or no technical skill to operate. With this approach, each student would write or select his own story and make his own short film, with guidance from the staff. As each student returned from a shooting assignment, the technical questions he would raise would serve as the base for detailed instruction. A second approach, which stressed group rather than individual experience, would proceed from technical discussion of the film-making process, instruction by examples of commercial films of good quality and relevant subject matter, and development of script before the actual experience of shooting film as a production crew. A third approach, also group-oriented, would entail "hands-on" experience with the 16mm camera, followed by group discussion and technical instruction specifically related to the day's task. After introduction to the exposure meter and various aspects of indoor and outdoor lighting and camera techniques, the shooting of brief scenes might be undertaken, each one directed, lighted, organized, and shot by the students rotating in roles as actors and crew members. This effort, while supervised by the instructors, would be entirely in the hands of the students.

The latter method was concluded as the one most consistent with the general goals of student feedback and iterative modification of curriculum. Recalling the previous experience with curriculum development, it was proposed that the youth themselves be the prime consultants on the procedure followed for ensuring continuity

of participant involvement and learning. The method applied was one of using participant feedback to develop the methodology indicating which approaches were effective and which were not. As a result, a course outline (see Appendix E) was developed and certain rules of procedure were applied by agreement among the gang members.

Instruction was introduced only on those aspects of film technique that were necessary for the task at hand. Each instructional session was preceded by actual experience with camera equipment. No theoretical issues or technical matters were presented without an expressed need for information arising from actual experience.

Each day's work was screened within forty-eight hours accompanied by a discussion of mistakes and possible improvements. The students produced the story outline on a day to day basis and the story was transposed to typewritten material the following morning. The gang members, therefore, were their own producers, directors, and writers. Even the musical soundtrack was originated and produced by the members. All students were tested before and after the project on a twenty-eight item test covering technical information relating to the process of film-making.

For purposes of evaluation, the daily logs of the directors and personnel records on participants were kept and yielded a rich supply of information regarding (a) daily attendance; (b) punctuality of attendance; (c) number of minutes spent in non-salaried activity; and (d) objective evidence of attitude change as reflected in the logs of the program directors and the transcription of group training sessions.

Research Design

The purpose of the research proposed at this later stage of the Simon Gratz study was two-fold:

1. To study the short and long-term effects of an arts experience (film-making) on attitude and behavior of members of a fighting gang - all school dropouts - toward vocational education and employment.

2. To obtain by exploratory research and iterative feedback sessions a set of rules and procedures for conducting a successful arts program for alienated inner city youth.

The first phase of the research applied Dr. Tumin's analysis of the "process sequence" to the transcripts and journals of the

project directors as well as to periodic reports by observers of the project. At issue was the search for evidence that individual gang members caught up with producing a film documentary would progress from scepticism to involvement. The specific sequence of attitudinal and behavioral changes were described by Tumin as follows:

1. Having fun or pleasure in the activity.

2. Getting to know more about or becoming proficient in the art itself.

3. Through their experience in the art form, coming to understand more about their own relations with others and with society.

4. Through their greater skills, insights, or understanding developing a firmer sense of their own worth or value.

5. Through this exposure and its sequels, becoming more open and available for cognitive learning and vocational training.

6. Through the exposure developing a more positive orientation to work and its requirements and gratifications.

These six possible results of exposure to or involvement in the film-making experience are suggested by Tumin to constitute a process sequence which could be gone through by various individuals. Indeed, the research design followed in this phase of the overall study was postulated on just such a sequence, and the data taken based on the recorded statements and objective measures of overt behavior encountered during the conduct of the research. Thus, the first set of data for classification was drawn from anecdotal reports of the project directors (both recorded tapes and journal entries) and from the statement of the gang members involved.

A second set of measures was taken from similar material but constituted more quantifiable data. The results of a twenty-eight item test, daily attendance records, amount of time spent in non-salaried activity related to the film production, and hours of productive employment outside the project were summarized and used to test the following hypotheses:

1. Instruction in film-making will significantly increase the student's working knowledge of the subject matter.

2. Individual attendance and punctuality records will improve as the instruction progresses with a concomitant increase in number of minutes "given" to the project as students complete the third and fourth months.

3. Attitudes will change toward education and work and increasing numbers of students will elect to continue their education or seek gainful employment.

These hypotheses constitute variables related to the possible range of effects leading to personal development and change. They do not necessarily reflect processes of change so much as they reflect the amount of change that is taking place. In that regard, they offer measurements of goal claims and give some hint as to what variables have kind of influences that produce change. They reflect changes in the learner population at the beginning, middle, and terminal points of their instruction. And while they are the simplest of measures, the approach is suggested for more exhaustive studies of the relationship between art instruction, motivation, and vocational preparation of alienated minority youth.

## Conduct Of The Film-Making Program And The Final Phase Of The Research

Given this approach to the research and the understanding reached with the Simon Gratz evaluators that the participants in the film-making program would essentially administer their own program - i.e., set up their own rules and procedures, write the shooting script, maintain all payroll, et cetera - the Tutorial Center staff, augmented by Harold Haskins and Phil Gallighan, were able to conduct both projects simultaneously. The Twelfth and Oxford Street group proceeded to form Film-Makers, Incorporated, as their new identity and operated from their gang headquarters in the housing tract near Temple University (see CHRISTIAN SCIENCE MONITOR report in Appendix J). Their contact with the Simon Gratz Center was minimal but interaction with professional staff members and with Haskins and Gallighan was extensive and had significant effect both upon the outlook of the staff and the future conduct of the curriculum development program. The student evaluators who had engineered this project were enthusiastic about the arrangement and kept their bargain in terms of improving and modifying the instructional programs that dealt with Job Searching, Job Application and Interview, Job Acquisition, and Job Maintenance.

At the Boys Club Tutorial Center, the modification process went smoothly through three and in some instances four revisions of the instructional programs already put through a first-order revision by the Center staff and writer-editors. Student evaluators, and their newly recruited spokesman, Bill Anderson (who became a paid consultant to the project), tackled the problem of script development for the film that was to serve as the integrating mechanism

for the instructional units (see Appendix D for a portion of the Film Script and Shooting Script). And while they still held considerable disinterest in the strategies proposed for black students to seek out and secure employment, they found the specific tasks of improving the role playing situations, writing the dialogue for the film script, improving and testing the game units, making tapes, et cetera, sufficiently challenging to keep their reservations in abeyance - at least until the final introduction of the course into the regular curriculum of high school was proposed. In terms of responses to the instructional strategies and the specific content of the instructional units, the measuring and math skills section of Unit IV yielded the greatest amount of coded response data, although even here, the extent and variety of verbal interactions between student and tutor were minimal.

The problems encountered with student feedback and interaction on specific instructional matters were sufficiently difficult to cause the tutors and their recorders to try a variety of means of generating a richer source of interaction protocols for subsequent coding and analysis. For example, it was necessary to have the students read the material aloud in order to make problems associated with reading deficiencies more evident. The tutors tried increasing the number of diagnostic questions seeded throughout the materials to gain a better check on the student's comprehension of the material. And even with two students scheduled in each tutorial session, initially arranged to make it possible for the students to reinforce and encourage each other, the tutees' previous experience with classroom situations had so dampened spontaneous expression that they found it still inhibiting to be involved in a close feedback situation with the tutor. As a consequence, and as a result of the resistance to the general strategy and design of the units, the tape transcriptions and the coded observations of the recorders were disappointing in terms of their yield of meaningful data on subject matter related learning problems, various instructional strategies and routines, and typical student questions resulting from confusions over direction, item formatting, illustrations, and so forth. The data on student responses did not produce a workable data bank to be used for simulated, in-service training as originally proposed. These findings are discussed more extensively in the Results and Discussion Section.

The final research phase consisted of the experimental comparisons of the tutorially revised instructional units and the recording and analysis of the short and long-term effects of the film-making experience on members of the Twelfth and Oxford gang. Only the thirty-five students taking the courses in math and measuring skills (Unit IV) completed the entire instructional program. Controversy again prevented Units I, II, and III from being successfully introduced into the Simon Gratz regular curriculum as originally proposed.

A student strike over these and other issues effectively limited this portion of the formal research phase to the data obtained on Unit IV. However, the Twelfth and Oxford Street Film-Makers venture went according to schedule and the results more than made up for the loss of empirical data in the comparative studies.

## SECTION III / RESULTS

### The Long Hot Summer Tutorials: Review Of The Job Search, Job Acquisition, Job Application And Interview Workbooks

At the outset of the summer tutorials, it became quickly apparent that several presentiments were brought to the tutorial center. These attitudes, held by the majority of the forty-eight tenth and eleventh grade students involved in the tutorials (and probably by the majority of the twenty-four students serving as controls and as backup but not permitted to make an input), were derivatives of first-hand experiences in a low-income, depressed opportunity community. Most students held a negative attitude toward career ladder concepts for black students and toward the job search process in general. The feelings expressed were that satisfying, well-paid, status work is barred for the black student and that counselors or teachers who are anxious to push vocational careers end up hurting students more than helping. As was brought up in the initial group meeting, the problem of such attitudes was greater with males than with female students.

If students bring such attitudes to the curriculum review sessions, at some point they must be dealt with. At the very outset when the student evaluators were asked to indicate a job choice as part of Unit I (Seeking A Job), they balked at picking a "realistic" job that was unattractive to them or, for that matter, an "unrealistic" job which would have turned the rest of the unit into a farce - in their opinion.

The initial tendency, as reported by the Center staff, was to dismiss these attitudes as immature, or as the result of unusual deprivation, or as a result of the students' anxiety state over the tasks they were expected to fulfill. Yet it soon became evident that the new tutorial staff, and a new member of the writing staff, Mr. William Anderson, also backed up the students in their opinion.

It was clear that given the strength of the attitudes toward the units with a job search focus, some compromises were going to have to be made. The Magna Carta statement presented to the staff (see pages 36 and 39), with its concomitant agreement to implement a film project as part of the major research effort, was agreed to and implemented. The following broad principles were reflected both in the concept of using the arts as a means to career development (film-making) and in modifying the job search units:

1. In introducing a career development program to school dropouts, give maximum opportunity to write, speak and see oneself objectively, rather than be taught how to get a job. The value of this approach is that it encourages the black student to be expressive rather than "practical." Such a perspective also provides a

kind of safety valve when the student sees the exercise as either too "realistic," and therefore threatening, or not "realistic" enough, and therefore irrelevant from the point of view of getting a job.

2. More specifically, minimize the pressure on the student to accommodate himself, within the learning process, to the existing job situation as he perceives it. Stated differently, allow the student to engage in some exercise which is oriented toward "changing" the job situation rather than adjusting to it - i.e., opening up opportunities in film-making, establishing small business enterprises as the Twelfth and Oxford Street group subsequently did.

3. When re-writing instructional material, continually emphasize the observation that the individual student's attitudes toward himself and pride in culture and race will affect his chances of finding a satisfactory position.

4. Concentrate in the redevelopment of units on opportunities for creative self-expression, self-knowledge, and accentuate real experiences in self-direction. Once a sense of well-being is achieved, then introduce materials which focus on work and improved attitudes toward learning.

Unfortunately for those evaluators interested in following this latter principle of encouraging self-expression, the creative writing units (Writing Unit II and IV of the original materials) had all been eliminated in the first revision following the proctor/teacher recommendations. The argument had been that two workbooks cannot overcome a lifetime of deprivation in writing and good speech habits. The student evaluator's answer might have been - so what's wrong with starting now?

Student Recommendations For Unit Changes

In dealing with the Job Search and Acquisition Units, the student evaluators and tutors advocated a mixed approach to the materials, i.e., some materials should be oriented to the student with a positive attitude toward job searching and some to the negative student. Consequently, student evaluators, in the early phase of their review work, found themselves almost universally engaged in reshaping objectives and expurgating portions of the instructional units to fit the general principles described above or those espoused in the Magna Carta. For example, the entire script of the film, LEROY AND CHARLENE, was worked over by the evaluators of Unit I introducing a militant "counselor" who served as the narrator of

the film - a role that hadn't been built into the original script. This narrator substitutes his (the student evaluator's) advice for the more or less naive views of Leroy toward getting a "gig." The opening scenes of the film as originally perceived by the writing staff of the Simon Gratz Center introduced Leroy and Charlene and took them directly to the State Employment Office to look for jobs. The revised version of the script has the narrator introducing the situation with the opening line: "Looking for a gig is a drag for anybody. Even a Honkey looking for work has to go through some changes to impress the Man . . ." and offers the advice early on that the best way to find a job is not at the employment office, but through friends who can be looking for you rather than trying to do it all by yourself (Appendix D).

More specific exceptions were taken to material that appeared to put down the black student's opportunities to find a better job. For the story on "How I Got My Job Through The Philadelphia Inquirer" in Unit I, the students insisted on adding the question at the end of that story: "What is the difference between mowing grass and a job with more responsibility? Think hard before you answer." Answers were given as: "Anyone can mow grass." "A new job will prove that he could handle a more responsible position."

On page 54 of Unit I, the question, "What is vocational training?" was posed and the typical responses given were: "Go out and look for a job . . ." or "A training you get on your vacation time for whatever it may be . . ." et cetera. The students' comments to the tutors as to what was wrong with this portion of the unit was that they were simply not motivated to answer the question properly. It was subsequently eliminated as irrelevant to learning about the job search process.

In the Job Application unit, exceptions were taken with the vocabulary that was used. On page three it was recommended by six of the students that the word "mulled" was not in the Simon Gratz vocabulary - it was eliminated. On page fifty-four, a misspelling was found in "comparitive government" (this was the one misspelling the students recognized out of many possible). Generally, the students thought this unit was fun, and of considerable interest. But on page ninety-nine, when faced with the task of filling in both sides of the Income Tax Return Form, several students balked and gave no response. They complained that the instructions "We are going to complete Alan's form for him" didn't actually call for the student to fill in the form. Secondly, they felt that copying what they were told to fill in did not constitute real learning. In the final copy, the instructions on page ninety-nine were improved but the procedures were not changed.

In Part III of the Job Acquisition unit on page forty-one, students could see the reason for including truck drivers, dish washers, gas station attendants as examples of poor speech, but they argued that

even the dish washer wants to communicate so he can be understood. They felt that lower paid jobs should not be used as examples for students in the first place, but if they had to be, they should at least require good speech habits. It was recommended these jobs be handled in a different manner.

The History of the English Language, which introduced Part III of First Contacts, came under considerable criticism. The minor complaints dealt with vocabulary such as "venerable," "continuity," and proper names like "Etruscan" or "Phonecian." But the major concern was with the statement that "English may be said to have given rise to Negro Dialect." The majority of student evaluators and virtually all the black tutors took exception to the implication that the English were the originators of the rich black dialect (even though this was not what was being implied) and that since history was not particularly apropos or necessary to handling interviews or developing correct speech patterns, it should be eliminated in its entirety. It was.

One positive example will serve to round out the illustrations of responses the student evaluators gave to the Job Search and Acquisition packages. In the process of video taping the "Role Play Book," evaluators critiqued each other's performance and took particular interest in serving as "the boss" who would request more information, clear up apparent misunderstandings, and ultimately decide whether or not to hire the applicant. The students' independent evaluation of the Role Play Book (see Appendix F) serves as an example of positive response and a realistic perception of the basic requirements of good communication.

Feedback From Observers/Recorders In The Job Search - Acquisition Units

The observers/recorders had a particularly difficult time with these units as the amount of response and the intensity and simultaneity of the dialogue made the coding of the taped transcripts of the tutorials an almost impossible task. This combined with the background noise of the Nicetown Boys Club created a quality of tape that was difficult at best. Fortunately, the recorders, in contrast to their colleagues who were observing the math and measuring skills units, were required to make little input to the revision sessions with the exception of tallying unanswered pages (see Figures Five and Six) and analyzing diagnostic test item responses which served as criterion for the cessation of continued revisions. When proctored students made no errors in responding to diagnostic test items or left no pages unanswered, the unit was considered complete. The lack of input on the part of the observer/recorder may also imply some hesitancy on the part of the predominantly white observers to confront the seemingly volatile feelings expressed by the militant students and tutorial staff. This was not the case in the review sessions with the more standard educational fare of math and measuring, where the situation was reversed, and more

FIGURE 5. / UNANSWERED PAGES: FIRST CONTACTS UNIT WORKBOOK

| STUDENT | 21 | 22 | 24 | 27 | 28 | 34 | 39 | 46 | |
|---|---|---|---|---|---|---|---|---|---|
| Marlene Dickerson | | | | | | X | X | | |
| Catherine Mark | | | | | | | | | |
| Rosalie Kennedy | | | | | | | | | |
| George Pearson | X | X | X | X | | | | | INCOMPLETE |
| Marlene Souets* | | | | | | | | | |
| Bernard Payton* | | | | | | | | | |
| Patricia Brice* | | | | | | | | | |
| Irvin Nelson | | | | | | | | | NO ATTENDANCE |
| Patricia Cantey | | | | X | X | | | | |
| Gwen Starks | | | | | | | | | |
| Debby Wilkins | | | | X | | | | | |
| Romona Brinkley | | X | | | | | | X | |
| Willie Dunn | | | | | | X | | | |
| Barbara, Backmon | | | | X | | | | X | |
| Thomas Bailey | | | | X | | | | | |
| Pherbia Humphrey* | | | | | | | | | |
| Samuel Conovers* | | | | | | | | | |
| Brenda, Parker* | | | | | | | | | |

* Proctored Students

FIGURE 6. / UNANSWERED PAGES: TRAVEL SKILLS UNIT WORKBOOK

| STUDENT | 3 | 9 | 11 | 15 | 16 | 17 | 19 | 22 | 23 | 27 | 28 | 29 | 31 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barret, Seth | | X | | | | | | X | | | | | | |
| Cureton, Jethro | X | X | X | X | X | | | | | | | X | | |
| Fleming, Brenda | | | | | | | | | | | | | | |
| Gregory, Loraline | | | | X | X | X | X | X | X | | | | | X |
| Hart, Robena | | | | | | | X | | | X | | | | |
| Jefferson, Doris * | | | | | | | | | | | X | | | |
| Knowles, Lorie * | | | | | | | | | | | | | | |
| Norris, Deborah * | | | | | | | X | | | | | | | |
| Pressey, Thomas | | | | | | | X | | | | | | | |
| Pritchett, Robert | | | | | | | X | | | X | | | X | |
| Reese, Marsha | | | | | | | X | | | | | | | |
| Richberg, Jerry | | | | | | | X | | | | | | | |
| Seaborn, Barbara | | | | X | | | X | | X | | | | | |
| Taggart, Roberta * | | | | | | | | | | | | | | |
| Twiggs, Edgar * | | | | | | | X | | | | | | | |

* Proctored Students

typical of the school climate, with observers and writers making all the changes and little active participation of tutors and student evaluators in the revision process.

The difficulties that observers encountered with categorizing and generalizing the learning errors and creative responses to workbook units I, II, and II was also related to the open-ended nature of the responses. Recommendations for future projects, whole new scripts, and evaluative judgments that have little to do with the task at hand - did not fall into the categories that had been prepared for the observer's checklist (see below). Things went better with the quantitative units on math and measuring.

Modification Of Math And Measuring Skills Units, Part IV Of Workbook IV

The math and measuring skills units was adapted from SUGGESTED UNIT COURSE IN MEASUREMENT, Machine Shop Series, Delmar Publishers, Incorporated, and GENERAL MATHEMATICS, BOOK ONE, Laidlow Brothers Publishers. Both books were in use at the Simon Gratz High School and were selected to constitute the initial base of instructional materials for modification and testing.

In adapting this unit to a self-instructional format, the Center staff and writers added topics, examples, manipulative items, and each of the units were organized to meet the instructional objectives set forth in Appendix A. These objectives were considered essential work skills for any male or female student assigned to an entry level job within industry or the service trades (with the possible exception of the use of calipers).

The math unit, as prepared by the Center staff and subsequently modified by a graduate teacher at Temple, was a straightforward adaptation of the original text into a self-instructional format. The measuring skills self-instructional program, however, as modified by two shop teachers, was composed of fifteen Jobs, each of which was to be covered in one day of training. Three types of items were used, two of which were entirely original with the proctor/teachers. Instructional items, drawn from the original sample of instructional material, introduced the material to the student; diagnostic test items provided practice on the skills involved; and various manipulative items including a workboard and blocks, calipers, rulers of various calibrations, et cetera, developed manual dexterity and eye sighting ability for close measurements. The instructional material for both units was prepared in loose-leaf notebook form and illustrations were drawn and color coded to match the manipulative items found in the measuring skills work-kits. Feedback on test items seeded throughout the instructional units was provided by an answer sheet given by the teacher or tutor as required. Diagnostic test items were prepared in the constructed and multiple choice form.

To measure the student's before knowledge of fractions, decimals, and measurement skills, a fifty-four item pre-test was prepared. The pre-tests also served as a statement of the behavioral objectives for the units (see Appendix G).

Tutorial Revision

Tutorial sessions with the tenth and eleventh grade Simon Gratz students led to many major and minor changes in the programs. The measuring skills unit was particularly troublesome. Jobs 5, 6, 7, 9, 14, and 15 were found difficult by the student evaluators.

Student responses to Job 5 ranged from problems with formatting - i.e., understanding the answer chart notation on page forty-four to an apparent inability to transfer the number line procedure to the task of finding the lowest common denominator. One student said, "I don't know what is meant by #. I thought it meant how to fraction or the height of something." Many of the problems expressed were with procedure: "Measuring should have been on table instead of board." As a result of the general difficulty that all students encountered on Job 5, the entire Job was rewritten and the procedures for finding equivalent fractions were carried out in small step fashion with illustrations showing exactly how to place blocks on the table and so forth. The answer chart was revamped to take care of unfamiliar notations; example: "How many 1/16 blocks did you use?" was added to explain the column marked "# of 1/16 blocks." The students receiving the improved unit in the proctored sessions were able to answer all the diagnostic questions correctly (thereby meeting all the final revision criteria) but they still had difficulty with the answer chart. Final revisions in this unit expurgated the answer chart and substituted a feedback sheet which gave the answers to each of the individual test items in a non-tabled format. The difficulty that the students had with the answer chart pointed up the rule of irrelevancy - all stimuli that are irrelevant to the criterion task should be eliminated from the instructional unit (see Silberman, et al, page ten).

Job 7 caused all of the tutorial students to complain that there should be some instructions on how to sight the reading of the measurements on the ruler. The illustration on page fifty-one was added showing a student sighting straight down on the ruler. None of the proctored students as a consequence had difficulty with this task.

The re-introduction of the concept of lowest common denominator in Job 8 caused some difficulty for several student/evaluators. The following transcript was taken from student number three at 9:00 A. M. It illustrates the conceptual problems engendered by misleading examples and underscores the effectiveness with which students can report upon their own difficulties and suggest improvements.

Interaction Protocol For Student #3 Working

On Measuring Skills Workbook IV

T: What did it say?

E: It says, how long are the sticks K and N.

T: How long are they?

E: 1/8".

T: What did they tell you up there? (evidently pointing to line 4 and 5 on page 58)

E: But they say, for instance, you can reduce 2/16" (line 7 - Evaluator did not mention the 11). Do you want the whole answer? They just said reduce the 2/16". They didn't say...

T: How long were the sticks, really?

E: That was the part I just reduced.

T: Read this again. What does it say? (again pointing to line 4 and 5) Up here.

E: I still don't see it, but I'll put it down.

T: What don't you see?

E: They just ask what was 2/16 reduced to.

T: Don't they tell you how long the stick is?

E: Sure they tell you.

T: Can the 11 be reduced?

E: No.

T: Can you reduce the 2/16?

E: Yes.

T: O.K.--they want you to do one thing at a time.

E: If they want me to do one at a time, they should say it. They just said reduce 2/16.

T: O.K., reduce 2/16 to what?

E: 1/8.

T: O.K., you did that, right?

E: Yes.

T: Now, here's what they want you to do. Read this.

E: I read it already.

T: Read it out aloud for me.

E: The answer should be 1/8" (line 8 but again omitting 11).

T: Did you get that?

E: Yes, I got it.

T: Now go on and read the whole sentence. This one.

E: I'm reading it.

T: What does it say?

E: Sticks K and N were really how long? I think.

T: Do you know how long they are now?

E: Yes I know.

T: Do you know why they are that long?

E: Yes, one reason is that I reduced it to fraction.

T: O.K. Because 11 2/16 is the same as what?

E: 11 1/8.

T: Does that make sense to you?

E: No.

T: Why doesn't it?

E: Well, it makes sense because I know that 2/16 is the same as 1/8.

T: Why do you say "no"?

E: I don't think it should be that way. They should have put down here. So how really long is the fraction. Then I'd put 1/8. If they wanted the whole thing, just like you just got finished telling me, then they should put it down.

T: Didn't they say how long are sticks K and N?

E: They should put it in a smaller sentence and say after reducing the fraction how long are the whole number and fraction altogether. Something like that.

All tutorial evaluators had difficulty with Job 9. The common complaint was that the unit was too wordy, too lengthy, and did not have enough illustrations. As a result, several iterations or versions of Job 9 gradually reduced the length of the unit from one of 112 lines of print to one of 82 lines and, more importantly, the illustrations were increased in density from an average of one drawing per page to two with improved renderings showing magnified ruler markings which make the sighting of sixteenths a much easier task.

This reduction of words in the unit, the increase of illustrations plus the amplification of opportunity to practice and review did not overcome the teaching difficulties of the unit. An analysis of the unit content, review of the taped transcripts of the tutorial interactions and study of the daily evaluation sheet statements written by the students and the proctors, revealed at least three major oversights. The first was that sub-skills were called for on the diagnostic criterion test at the end of the unit that were not explicitly taught within the program. The second problem was linked to the earlier units which did not teach the related skills necessary to acquire the ability to round off fractions. The failure of the authors to provide alternative sequences or additional practice items for students who had not mastered the earlier units seemed an important oversight. Last, but not least, irrelevant responses were called for in the unit, increasing both its length and complexity.

In the diagnostic criterion test found on page seventy-three of the revised unit, rounding off to the nearest 1/2 inch and identifying the nearest higher and lower 1/8 measures for the same reading on the ruler are sub-skills which **are not** explicitly taught in Job 9. As one student put it, "I had a lot of trouble with the last page where it said 'round off to the nearest 1/2' - and I thought you meant like 3 1/2 not 4 as a whole number." He was right because all of the practice test items on page sixty-seven required rounding off to the nearest 1/2 inch but in each case the nearest 1/2 inch was not a whole number. Similarly, another student complained, "You should have gave an example - find higher 1/8 and lower 1/8 for a number." Again, the diagnostic criterion test called for this response and no prior practice had been given. As D. P. Ausubel states in his book on MEANINGFUL LEARNING (17), "Serious breakdowns in learning can often be attributed to inadvertent omission of a logically essential component unit from the total task . . ." Two of the tutored students had identified the oversight even though they did not verbalize the more general principle.

One proctor reported, "Job 9 was hard for a number of students to understand. It was the first job in which they were working without the measuring board and I have a feeling that those who were having trouble still do not have a clear concept of the number of eighths in 1/2 or number of sixteenths in an inch." The transcript

of student evaluator number one which follows clearly indicated that this student had not yet mastered the previous material introduced in the Math Unit and reviewed in Jobs 5 - 8. As will be seen from the dialogue with the tutor, this student was unable to identify the markings on the ruler, had difficulty in reducing fractions to the lowest common denominator, and encountered trouble in discriminating between the nearest larger fractions. These were all skills thought to have been mastered in the earlier units.

Student Evaluator #1 - Transcript

Page 64 - Job #9

E: There's 9 9/16".

T: Put a little mark there. We're rounding off to the nearest 1/2", okay?

E: Yes.

T: What's the nearest 1/2" to 9 9/16?

E: 10".

T: Is that the nearest one?

No answer from Evaluator.

T: What about this? (Pointing to 9 1/2")

Again no answer from Evaluator

T: Let's look at this mark. (Pointing to 9 1/2")

No answer.

T: 8/16" equals what?

E: 2/8"? No . . . wait a minute.

T: You're looking at the ruler. What mark is this? (Pointing to 9 1/2")

E: 8/16".

T: This point is 9 1/2, right?

E: Yes.

T: So 9 6/16 is closer to 9 than 9 1/2.

E: No. It's closer to 9 1/2.

T: Right. Now try the others.

E: Is this right for 10 11/16?

Obviously not correct.

T: Let's look at a diagram again. Now this is 10, this is 10 1/2 and this is 11 - O.K?

E: 10 11/16 is closer to 11.

T: Is it? How many spaces to 10 1/2"?

E: Three.

T: How many to 11"?

E: Five.

T: Which one is it closer to?

E: 10 1/2.

Evaluator obviously does next set of problems correctly and is told to continue reading. Dialogue picks up again with evaluator on page 69.

T: Now, 11 3/16 is here, isn't it?

E: Yes.

T: O.K. What is the nearest 1/4"?

E: 11 4/4".

T: If that's 4/4" we should have an inch, right?

E: Yes.

T: Is there an inch between 11" and 11 3/16"?

E: No.

T: So that's not four, is it? So what is it? How many quarters in an inch?

E: Four.

T: Show me the four quarters between 11 and 12.

E: Here - there's one.

T: O.K., show me another.

E: There's two.

T: No.

E: No?

Evaluator had difficulty locating second quarter. Probably due to fact that it was shown on ruler as 12" and not as 2/4". Tutor points out four to evaluator, counting and pointing to each. Evaluator agrees with tutor and counts and points to prove it.

T: What do you call 8/16"?

E: 1/2".

T: Right. So what is 9 9/16" closer to?

E: 9 1/2".

T: Right - that wasn't too hard was it?

E: No.

T: Now try remainder of problems.

E: O.K.

After a pause -

E: Isn't this 9 5/16"?

T: No. What point is this? (obviously pointing to something) Count them.

E: One, two, three, four, five, six.

T: Six what?

E: six-sixteenths.

T: What half is that closest to?

No answer.

T: Is it closer to 9, 9 1/2, or 10?

E: 10. No, 9.

The inability of this student evaluator to understand the essential tasks in this Job unit seem related to his lack of mastery of the sub-skills associated with earlier material. The difficulties of this one student plus the complaints of the other evaluators might have tipped off the authors to the fact that some review or remedial sequences should perhaps have been introduced at the juncture between Jobs 8 and 9.

Related to this mastery principle was the fact that within Job 9 some items did not contribute to criterion performance on the final test. For example, in the final revised version of Job 9 some new material not seen in the first or second versions of the unit was introduced to help the student round off to the nearest sixteenths. However, the final criterion test did not require this application. This introduction of new material might seem laudable to the authors but to the student it was a distraction and served as an unnecessary interruption. Other irrelevant items appeared earlier in the unit when the student was called upon to answer the question, "Why did the disk jockey tell you 3 1/2 minutes instead of the exact running time for the record?" (Answer: you didn't need to know!) This irrelevant response was required while the larger concept of approximate measures was never developed. In this instance one student remarked with some disgust, "No D. J. tell the time of the record."

Similar analyses were conducted on the student evaluator's reactions to Jobs 14 and 15 and random and typical samplings were taken from the math unit. While the quality and quantity of open responses to the instructional units was not as varied as that achieved in previous research with white, middle-class students (18), it substantially demonstrates that valuable formative evaluation data can be gained from disadvantaged black students if they are trained and encouraged to respond openly to the learning task.

Unfortunately, the quantity of data gathered from the tape transcripts and the written statements of students and observers was not sufficient to necessitate computer processing nor was it adequate as a data bank for in-service training as originally proposed. Yet the varieties of feedback data accumulated in the project will hopefully yield some new directions for others interested in this productive field of research.

## Varieties Of Feedback Data From The Research

As described in the Methods Section, observer/recorders took notes during the tutorial sessions and made tape recordings of the interactions between tutor and student evaluator. Notations were made on a copy of the particular revised unit of instructional material used in the tutorial session and specific problems created by the

material and the effect of the tutor's engineered solution were duly recorded and carefully stored and subsequently used as input to the revision sessions. The notes were transcribed into a list of "Student Problems" and the list was categorized into more generalized statements of typical problems encountered for subsequent feedback to the writer-editors during the revision sessions. The following list of generalized learning problems is compiled from students learning to construct a frequency table - an exploratory unit prepared early in the research and subsequently eliminated from the Math Unit when finally revised.

## Learning Difficulties Associated With Making A Frequency Table

1. Titling the table

   a. forgets column titles
   b. forgets title to whole table
   c. incorrectly titles columns and whole table

2. Filling in the item column

   a. doesn't table items of category in order or increasing magnitude
   b. missed one item category
   c. left out item column category
   d. puts all items in column rather than item categories

3. Tally mark column

   a. doesn't tally each item
   b. tallies items randomly rather than counting them
   c. not crossing out items as tallying
   d. left out tally mark column entirely
   e. tallies one category twice
   f. puts tallies in wrong column
   g. puts numbers in columns rather than tally marks
   h. makes tallies correspond to items rather than to frequencies
   i. crossing out item categories in table rather than list as tallying
   j. crossing out items as filling in item column rather than in tally mark column

4. Frequency column

a. doesn't table frequencies instead numbers each line
b. left out frequency column
c. put frequencies in wrong column
d. added total of frequencies incorrectly

Student observations were taken each day from the Daily Evaluation Sheets and cross-indexed with the tape recordings of the sessions. Examples of daily observations by both student evaluator and observer have already been given in the discussion above.

Content-Related Feedback

The usefulness of feedback data for the improvement of instructional units varied for different teams of tutors and observers and for different content areas. Among the teams working with the quantitative material (math and measuring skills) evaluative feedback made a substantial difference in the reorganization and/or expansion of instructional items - i.e., the variation of step size, the reconstructing of illustrations, the addition of new examples and problems, et cetera. From the other teams, feedback did not relate as much to instructional strategies and organization as it did to the validity of the instructional goals and authenticity of dialogue and narration. The following categories of content-related instructional problems were drawn from the protocols of the taped interviews:

1. Formatting Problems

   Examples:
   "I don't understand the diagram."
   Has difficulty in finding answers on reverse page.

2. Vocabulary Problems

   Examples:
   "What this mean."
   Hesitates over individual words.

3. Conceptual Problems

   Examples:
   "I had trouble with finding the simplest fraction."
   Gives wrong answer or leaves diagnostic test items blank.

4. Procedural Problems

   Examples:
   "Don't understand where I go next."
   "Page 42 didn't tell to clear how to set the ruler on the board."

5. Evaluative Reactions

   Examples:
   "The material in this job was good because it was easy to understand."
   "I done like interviewing, not fair."

6. Reading Comprehension Problems

   Examples:
   Hesitates over instructions.
   Laboriously follows instructional material and continually rereads.

7. Definition Problems

   Examples:
   Unfamiliar with notation of inches and feet.
   Stumbles on defining common denominator (academic jargon became a pet peeve with students).

8. Face Validity Problems

   Examples:
   "No such word" in reference to author's slang phrase.
   "No blacks goin' do that."

Tutor-Student Interaction Categories

All the college students selected by the staff to serve as tutors were undergraduates. Apparently from the comments made by both observers and staff, these tutors were not as expert in the specific subject matter areas as might be desired even though they were selected on the recommendation of department heads from the various fields of study corresponding to the areas under examination. With regard to job search and acquisition units, this was not as important as it was for tutors dealing with substantive skills like math, speech, and measuring. In these subjects, the tutors were apparently as intimidated by the white observers sitting in on the tutorial sessions as the student tutees. One tutor commented, "After day to day contact, the student and tutor became familiar with each other and very quickly found themselves the best of friends . . . Many of the students had objections which pertained to having the observers in the room. They felt that these people were spies. I had the same reaction." Another tutor responded in a written statement: "The evaluators (students), as well as the tutors, had to adapt themselves to the conditions of having a tape recorder on and two observers watching during the entire job. For shy students, it was bad enough to have the tutors there; for tutors, it was inhibiting."

During the revision sessions of the basic skills units, there is little evidence from the recorded data to show that tutors took an active part in the modification of materials. A tutor remarked in his summary evaluation, "The daily revision sessions were usually one-sided. It was grouped between Roxanne and Sarah (the two observers). Some days I would say to myself, 'This looks like a good unit. There should be no major changes.' Of course, I was kidding myself. It seems that some would always find something wrong. I blame no one but myself for letting these people take over."

In one of the units, that portion dealing with simulating the job interview (Unit III), the tutors played the role of observer and tutor. The student evaluators specifically asked that the white observers not be allowed to observe them during their review of the unit entitled "Role Play Book." Their reasons were given as the inhibiting effects of observers on the free responses of the student evaluators. The seven page report from the tutors and student evaluators about the revision sessions was the most complete feedback statement of its kind (see Appendix F for the report).

In the original design of the research, tutorial interactions were expected to yield a variety of strategies to resolve the problems that student evaluators might encounter. The model for tutorial interaction taken from earlier research by Silberman, et al (19) in which subject matter experts (the authors of the self-instructional units) worked with white students of varying ages, indicated that their tutors were adept at altering the instructional strategies, using analogies, or preparing on-the-spot alternate sequences that provided students who were having problems with different cues and feedback messages. The tutors in this research study apparently had less adroitness with the specific instructional material and as a consequence their teaching strategies were more limited in variety and scope. For example, from the transcript found on pages 58 - 61, the tutor's interaction with the student evaluator was basically limited to rhetorical questions and, in one instance, to directing - i.e., "Show me the four quarters between 11 and 12."

The following categories which characterize the tutorial interactions were suggested by the tape transcriptions:

1. Rhetorical Questioning

   Examples:
   Reading answers to problems.
   Reading problems from book and calling for repeated responses until answer is correct.

2. Directing

   Examples:
   Instructing on use of tape recorder or manipulative skills.

3. Checking

   Examples:
   Request student read from text.
   Checking student's understanding by rephrasing question only slightly.

4. Encouraging and Acknowledging

   Examples:
   Answers students' questions.
   Praises student's evaluative comments.
   Solicits criticism of unit.

5. Relating

   Examples:
   Asks questions of more personal nature and not particularly dealing with subject matter.
   Takes "role playing" position as interviewer.

6. Restructuring

   Examples:
   Develops a new strategy for explaining or teaching sub-skill.
   Restates entire problem approach.

7. Challenging

   Examples:
   Questions student inviting significant participation on controversial material.
   Undirected questions inviting inquiry into assumed objectives.

A reliable count on the frequency of occurrence of the above categorized responses was not possible for any unit as the quality of the tape transcriptions were uniformly poor due to the extraneous noise in the Nicetown Boys Club and the amount of simultaneous discussion. A sampling of different tapes generated the hypothesis that the more open-ended the subject matter - i.e., job interviewing versus teaching the associative law for addition - the more extensive the tutorial interaction. The evidence also seems to indicate that the more participatory forms of instructional units - role playing, handling telephone interviews, et cetera - generated more intense interaction between tutor and student evaluator and elicited more challenging questions from the tutor.

Responses by student evaluators fell into four different modes or categories (suggested by the Minnesota Training Laboratory) (20):

1. Receptive-Passive

   Examples:
   Reading book or answers from feedback sheet.
   Trivial agreement: "Yes, no, don't know."

2. Silence-Confusion

   Examples:
   I can't.
   "No comment."

3. Evaluative and Judgmental

   Examples:
   "If they want us to reduce it, why don't they have it like this?"
   Remarks on the illustrations and accompanying instructions.

4. Creative

   Examples:
   Suggests a multi-media approach to a whole family of topics.
   Offers to write or tape dialogue for film or tape.

5. Independent-Active

   Examples:
   Sets up rules and procedures for film project.
   Conducts poll of fellow student attitudes and experiences.

The students' response to math and measuring skills was uniformly of the first three categories. In contrast, those students working on Units I, II, and III exhibited both creative and independent attitudes toward their evaluation role. The variety of student responses seemed to be inversely proportional to the student's previous experience with the subject in school.

Proctor/Teacher Feedback On Instructional Units

During the first-order revision in the Spring of 1967, experienced teachers hired as consultants worked with five tenth grade high school students in each of the five subject areas. From their analysis of the students' responses to diagnostic test items seeded throughout the instructional materials as well as their observance of study room behavior, the proctors suggested changes in the order and formatting of the instructional units. These proctor/teachers made daily logs of their impressions (see Appendix I for a sampling) and submitted them to the curriculum development teams that had produced the first units.

The resulting changes have been discussed in the previous section. The basic alteration of the original five units was their reorganization into four workbooks that would involve a multi-media approach to job searching and job acquisition. Several units, particularly the creative writing sections of the original unit, were eliminated as a result of the teachers' inputs and decisions were made regarding the use of feedback answer sheets, tape recordings, and other modestly innovative instructional techniques. (In contrast, the student evaluators called for materials that accentuated the improvisational mode, the visual, and a gaming approach to learning.) The proctor/teachers generally limited their substantive feedback to editing, rephrasing of specific instructional items, and restructuring of entire units. The following categorizations reflect the kind of feedback that was typical from proctor/teachers:

1. Procedural Changes

   Examples:
   "I would suggest a final interview test with a teacher."

2. Organizational Changes

   Examples:
   "Place the slang material in Writing Unit IV at the beginning of Unit I since it is so much of interest to the students."
   "Print the rules that appear on page 35 much earlier, say on page 26."

3. Content Changes

   Examples:
   "On page 12 there is a problem in the directions . . ."

4. Media Uses

   Examples:
   "Unit III should have a split tape in which students can say the sentences and be followed by correct pronunciation."

5. Environmental Changes

   Examples:
   "Because of extreme shyness, I tried putting the screen around her while she taped her responses."

6. Editorial Corrections

   Examples:
   "Spelling and typos are a frequent problem."

It was interesting to note that of all the reviewers and student evaluators, the proctor/teachers made, with few exceptions, the great majority of editorial comments and spelling corrections on the instructional units. While the student evaluators had frequent opportunities to correct typos, wrong directions, and page numbers, such was their conditioning that only once did they avail themselves of the opportunity. When questioned about this, several students said they had become hardened to such errors because of the quality of their workbook and study material in the school. Proctors, however, with a penchant for correcting papers, were not going to let such oversights go unnoticed.

Experimental Comparison Of Two Student Groups Studying With Proctor/Teacher Revised And Tutorially Revised Units

During the Fall semester, experimental comparisons were conducted to determine whether the tutorially revised self-instructional units covering the math and measuring skills represented a significant improvement over the proctor/teacher revised units. The tutorially evaluated instructional measuring skills program when it was revised for the final time consisted of 118 pages with 177 diagnostic test items and 80 illustrations. The teacher revised program, upon completion, consisted of 126 pages, with 207 test items seeded throughout the various Jobs, and 47 illustrations. The original math unit had 64 pages of instructional material, 316 diagnostic test items, and 69 illustrations. The final math unit, after tutorial revision, had 119 pages, 763 diagnostic test items, and 62 illustrations. Except for the number and variety of illustrations, the two instructional programs were for all practical purposes considered equivalent in terms of subject matter coverage. Twelve students randomly selected from the ninth grade math and shop classes received the tutorially revised instructional program, and another ten students from the same classes received the proctorially revised program. Two of the tutorially revised group did not complete the measuring skills units and thus were eliminated from the tutorial group. A third group of fifteen students, designated control group, had received the proctorially revised material during the Summer of 1967, and subsequently entered their regular tenth grade courses in math and shop in the Fall without taking the post-test. The two experimental groups received the mathematics pre-test at the beginning of the Fall semester and the measuring skills sub-tests. The same tests served as post-tests and were administered immediately upon completion of all units of instruction, approximately two months later. The control group received the mathematics post-test after an equivalent period of study in the math and shop classes.

Descriptive Data Of Student Population

Certain aptitude and achievement test scores were available on the subjects used in this study. For all subjects an I. Q. measured on the Philadelphia Verbal Intelligence Scale was available; and

data was available for most subjects on a Reading and Arithmetic Fundamentals test. These data are presented in Table I.

TABLE I / Aptitude And Achievement Test Means By Group

| G R O U P | T E S T Phila. I. Q. | Arithmetic Fund. | Reading Fund. |
|---|---|---|---|
| Tutorially Revised Group (N = 10) | 90.7 | 12.9 | 14.9 |
| Teacher Revised Group (N = 10) | 87.7 | 12.4 | 13.8 |
| Control Group (N = 15) | 88.4 | 12.8 | 13.7 |

Both arithmetic and reading tests were administered in the eighth grade; by halving the scores a grade level score is obtained. Table II presents these grade levels.

TABLE II / Achievement Test Grade Level Means By Group

| G R O U P | T E S T Arithmetic Fundamentals | Reading Fundamentals |
|---|---|---|
| Tutorial | 6.45 | 7.45 |
| Teacher | 6.2 | 6.9 |
| Control | 6.4 | 6.85 |

For the students to have been achieving at grade level, all the arithmetic and reading test scores should have been 16.00. The tabled means represent from 1/2 to 1 1/2 years lag in achievement.

In 1964, the Philadelphia Research Division of the Board of Education conducted an achievement testing program. The eighth grade Arithmetic Fundamentals mean grade level for the lowest performing school in the district was 6.3. The lowest performing school mean grade level for the eighth grade Reading Fundamentals was 7.1. The students in the samples used in this study have achievement scores on the average that are on a par with

those from the lowest achieving schools in the district. These students are on the bottom when compared with their whole school district.

The I. Q. scores are equally depressed, representing an average of 9 to 12 plus points below the average score of 100. According to their test scores, these students must be classified educationally handicapped.

Criterion Test Performance

The two experimental groups were given the preliminary criterion tests, the first covering the general math skills and the second, the measuring skills. Post-tests were the same as pre-tests. The measuring skills test had two sub-tests each consisting of 21 items and 41 items respectively - for a total of 62 items. The math skills test had fifty-four items, with 36 items considered of equivalent weight to the items on the measuring skills test. The control group received only the general math skills test as a post-test. The means for the three groups on the General Math test are presented in Table III and are stated as percentage of correct responses.

TABLE III / Group Means On Pre- And Post-Criterion Tests For General Mathematics (36 Equivalent Items)

| | Mean Criterion Test Performance | |
|---|---|---|
| G R O U P | Pre- | Post- |
| Tutorial (N = 10) | 32.5 | 70.1 |
| Teacher (N = 10) | 20.55 | 48.7 |
| Control (N = 15) | - | 48.9 |

Means for the two experimental groups on the Measuring Skills tests are set forth in Table IV.

TABLE IV / Groups Means On Pre- And Post-Criterion Tests For Measuring Skills

| | Mean Criterion Test Performance | |
|---|---|---|
| G R O U P | Pre- | Post- |
| Tutorial (N = 10) | 32.87 | 68.64 |
| Teacher (N = 10) | 29.38 | 48.05 |

No significant difference was found on pre-test scores for either the measuring skills or the general math tests. Raw scores can be examined in Appendix L. The major results on the post-training criterion tests are shown in Table V below. On the general math test (36 equivalent items), the tutorially revised program was superior at the .05 level to the teacher revised program. The tutorially revised program on measuring skills was also significant at the .05 level. For all practical purposes, the means of the control group post-test scores on the general math test and teacher revised group were equivalent (48.9 and 48.7), therefore an independent t-test was not computed for the control group results.

Comparisons of individual test item responses on the measuring skills sub-tests and study of intra-test reliability was conducted by an items analysis found in Appendix L. The percentage gain on the sub-tests for both tutorial and teacher revised experimental groups show the difficulty of each sub-test to be essentially equivalent.

A frequency count was run on the measuring skills post-test scores for subjects with I. Q.'s of 86 or less from the two experimental groups. The six students from the tutorial group had a range of 67 percentage points whereas the six low I. Q. students from the teacher revised group had a range of 59 points. A probable significant difference in the responses of the two groups was found in the spread of the scores. Five of the students from the tutorially revised group with low I. Q.'s had percentile socres of .45 or better whereas only one of the teacher revised group had a score above the .40 percentile level. Clearly, subjects in the lower intelligence quotient brackets for the tutorially revised group were better taught by the instructional programs (see Figure 7.).

Measures of study time for the two experimental groups were found unreliable, some students were observed to refer back to the materials after they had completed the lesson and others simply waited for the classroom period to run out, so the time data were not given any rigorous statistical treatment. Even though the tutorially revised math unit had almost twice as many pages as the teacher produced unit and required considerably more practice with diagnostic test items, the density of the instructional material was such that the two units took approximately the same number of days to accomplish, but the practice time in classroom for all practical purposes was double for the tutorial group. This may well account for the superior results of the tutorially revised math study group on the post criterion test. This would not be the case for the measuring skills groups as number of practice items were almost the same (177 for the tutorial group and 207 for the teacher group) with the weight in practice time favored the teacher revised group.

At the end of each daily study session, students in both experimental groups working with measurement skills material were administered an attitude questionnaire (see Appendix K). The percentage of their

responses to each category is shown in Table VI. The tendency of students to reply favorably (Very Interesting) to the instructional material that had been prepared under tutorial procedures was greater than with the teacher group. On the other hand, a slightly larger number of tutorial group subjects found the material dull but the difference for practical purposes is insignificant. Attitudes toward level of difficulty were only a few percentage points apart on each scale for the two groups, but again the direction of differences favored the tutorially revised materials in terms of favorable response.

TABLE V / Comparison Of Criterion Post-Test Scores For Experimental Groups (Tutorial And Teacher Revised Materials) And Control Group On General Math And Measuring Skills Test

| | Mean Score (% Correct) | | | Standard Deviation | | | |
|---|---|---|---|---|---|---|---|
| | Tut. N=10 | Teacher N=10 | Control N=15 | Tut. | Teacher | Control | t |
| Gen. Math (36 equivalent items) | 70.1 | 48.7 | 48.9 | 22.73 | 25.1 | 26.4 | 2.02* |
| Measuring Skills (62 items) | 68.64 | 48.05 | - | 24.56 | 26.1 | - | 2.08* |

*Significant at the .05 level (two-tailed test)

FIGURE 7. / Frequency Diagram Of Measuring Skills Test Scores For Students With I. Q. Less Than 86 From Two Experimental Groups

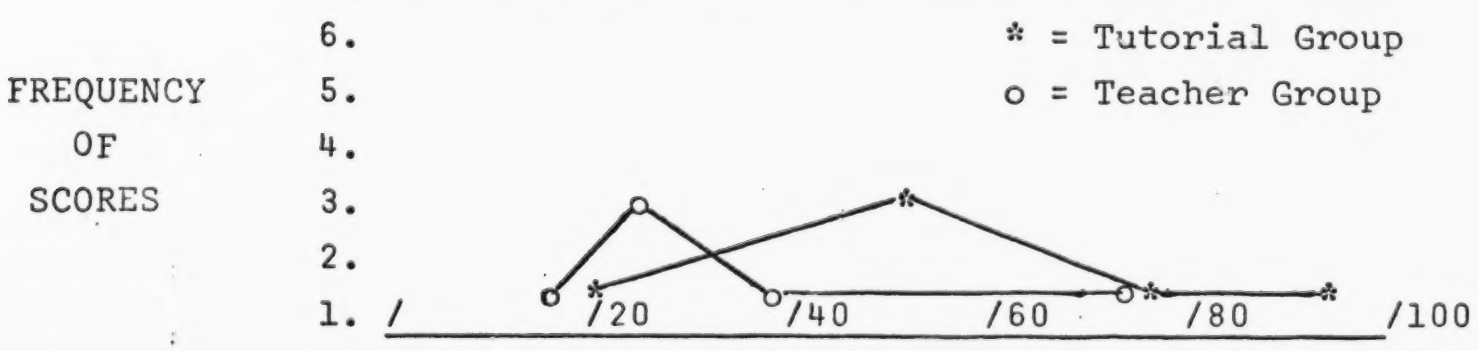

TABLE VI / Summary Of Responses To Attitude Questionnaire For Experimental Groups Working With Measurment Skills Units

| | INTEREST | | | DIFFICULTY | | |
|---|---|---|---|---|---|---|
| | PERCENTAGE OF TOTAL RESPONSES | | | | | |
| | Very Int. | Mod. Int. | Dull | Very Easy | Not Too Hard | Pretty Hard |
| Tutorially Modified (N=10) | .56 | .35 | .09 | .40 | .54 | .06 |
| Teacher Modified (N=10) | .45 | .52 | .03 | .33 | .57 | .1 |

In summary, the comparison of one student group studying with instructional programs that had been iteratively cycled through tutorial reviews, for the purposes of improving and tailoring the units for a population of tenth grade, deprived students, with an equivalent group of students studying teacher or workshop committee modified programs would appear to demonstrate that the tutorial approach is a more effective method of systematic program improvement. In addition, this approach provides an effective method for manipulating and observing the learning process under small group conditions. If highly controlled and carefully monitored, this method could generate testable hypotheses about critical variables that are related to improving learning conditions for the black student from economically depressed urban areas.

Results Of The Twelfth And Oxford Street Project

The first phase of the film-making project with the teenage members of the Twelfth and Oxford gang was given over to producing a documentary; the second phase to travel, lecturing, and "getting themselves together." The writing, filming, and editing of the documentary, appropriately titled, THE JUNGLE, took six months of elapsed time. At the outset, three weeks were spent at the gang headquarters learning the basics of film-making and outlining the shooting script. When filming was inaugurated, "writing" the script involved recording on tape the evening's deliberations on the next day's shooting and then having a member of the project staff transcribe the decisions of the previous night into a working script. Day to day instructions were limited to only those aspects of film-technique that were necessary for the task at hand. The professional instructor/cameraman, Phil Gallighan, was concerned with keeping the atmosphere as distinct as possible from that of a traditional classroom and instructional material was always accompanied by hands-on experience with the camera or associated equipment (a portion of the course outline is included in Appendix E). Each day's film footage was processed and displayed to the group within forty-eight hours from the time it was taken. During this period, logs were kept by the instructor and the coordinator, Harold Haskins. Samples of these statements are found in Appendix M).

The second phase of the film project came after completion of the film and its dramatic premiere on a nationwide ABC Special which covered three projects for inner city black youth. With this premiere, members of the production crew made repeated showings of the film, each followed by a question-answer period. William Cannady, Don Bushnell, and other members of the staff arranged for travel and film lectures to government agencies (OEO, USOE, NIMH, and the Department of Labor) and a number of private foundations and professional associations. With supplementary funds from the Kettering Foundation, the leaders of this gang and other gang leadership from other communities were brought to Watts, California, for a discussion of film-making and school drop-outs (21). In March of 1968, they made a presentation before the American Association of School Administrators and again in May, they held a seminar on the Community Arts at the National Conference of the Associated Councils of the Arts, with such other luminaries as Katherine Dunham and Robert Macbeth. The growing articulateness of the members of the gang is shown from this quote in the NEW YORK TIMES article following their appearance at the Councils of the Arts Conference (22):

> David "Bat" Williams, 20, president of the 12th and Oxford Film-Makers Corporation, and Jimmy "Country" Robinson, 21, vice president, sat on the dias at the conference and listened to comments and questions about the film they had directed. They had heard

> them all before in other parts of the country, so they only rarely showed irritation or amusement.
>
> "I had great difficulty in understanding the language," one woman complained. ("You all don't understand because you live in different worlds from us. You all can't dig. There is no communication.") "I think we just have to get used to the sound of each other's accents," offered another woman. "I was born in Illinois and have difficulty understanding people from California." (A silent look, a shrug, a laugh.) "When they beat a man up, are they robbing him or testing his manhood?" ("Because they were in our territory and they didn't belong there.") "Why did you make the film?" ("To help our neighborhood, to try to make some kind of communication.")

In May of 1968, the gang members organized Film-Makers, Incorporated, and started to invest the funds they had made from film lectures and the television showings, as well as a special grant from OEO, in neighborhood enterprises - laundromat installations and renovating old houses. Twenty of the gang members enrolled in special night management courses and arranged through the city government for apprenticeship training in the Housing Department and Legal Services. With support from local businessmen, two new films went into production; one entitled, WHY I DROPPED OUT OF SCHOOL, was being produced for the School District of Philadelphia. The April, 1970, issue of SHOWCASE MAGAZINE reports Film-Makers, Incorporated to be still involved in active production of new films (23).

While this rather remarkable documentation by the popular press of the successes of the Film-Makers Corporation shows evidence of the potential productivity and creativity of the members of the Twelfth and Oxford Street group, and attests to the perceptiveness of their peers at Simon Gratz High School in originating the project, it tells little about the changes in behavior and attitude of individual members of the gang toward vocational training and continued education. From the logs maintained by the project directors, from reports prepared by liaison members of the Simon Gratz staff, and from personal observation and travel with the members of the new Corporation, the researchers sought for evidence of the process sequence that Dr. Tumin hypothesized in his paper on the arts (24).

This initial set of data drawn from the anecdotal reports and direct obervation was used to develop longitudinal histories of individual gang members. These histories were then compared with the six Tumin categories outlined on page forty-two. The following account of the "process sequence" which two participants in the film-making project experienced serves as illustration of the kind of changes in both attitude and behavior that can be effected in such a program.

At the start of the project Students A and B were school dropouts and unemployed. Both were considered leaders in the Twelfth and Oxford Street gang.

The logs kept by the project directors on the Philadelphia project reflect the initial outlook of the two students used in this example. "From discussion with Mr. Lumbroso, I gathered that the two leaders did not seem over-enthused or even concerned with the project. Mr. Lumbroso felt that their main interest, if not their only interest, lies in the amount of money they would receive" (November 19, 1967).

Student B made this comment about the initial start-up and continued involvement with the proposed activity: "I figured they was some kind of police trying to check up on you. They told you how you could be in a year or two. But I really was one hundred per cent wrong."

By January, the film instructor was making this comment regarding students A and B. "Student A remains something of a problem. They disagree with him, and he's still yelling and hollering. Maybe he feels his part isn't big enough. I don't know. Student B is no problem. He goes along with the group. After he first dropped out, he came back to the group today, sober. He also has a part-time job now. Student A is a different kind of person from most of these boys, sort of a loner, as we've mentioned before. We've had some problems with him. He thinks things should be this way or that way. Maybe he thinks he's a little bit of a movie star. That's to be expected."

Within that month, Student A is expressing interest in getting a job at a chemical plant, through the efforts of the film instructor. In his journal, Gallighan writes, "A friend of mine, a business manager, talked to Student A and was much impressed with the kid. My friend thinks he's the kind of person who won't let anybody walk over him. He says he looks like he's going to be a hard worker. My friend thinks they'll hire him." He notes later, "Student A made out fairly well in his interview with Charlie Root and the service manager. It may be necessary for him to get a car to do this job. Of course, first he must get a license, so Saturday morning, which I usually spend sleeping, I will now spend taking Student A and Skinny Butch through the examination line at the State Police Barracks."

Though it was evident by February that through exposure to a male teacher and the relationship Student A had established to the project that some behavior changes were occurring, it was to be expected that some retrogressive behavior would occur in the process of behavioral change. This description of an event in Student A's film-making career is reported by the instructor

in the Philadelphia project. It also highlights the turning point in Student A's attitude toward continuing with the program. Needless to say, directing a gang in film-making has its peak moments of excitement.

"We had some problems tonight; the camera was taken over to Marvin's house. I met them at six-thirty. We ran a line into a neighbor's house and we ran a line into Marvin's house to give us two lights. We were going to re-shoot the part where Student A meets Bat. This was done in the Jefferson Manor Project between Eleventh and Tenth Streets. We finally got set up with the camera loaded and the place lit. I asked Charlie Brown since he is the director how he wanted to stage the scene. We had a little discussion about that. He wanted A to come from one side and Bat to come from the other side and they would meet and A would ask for directions, as he had done before. Peacock had the camera set up and Butch had the meter. Then A told Charlie Brown that he wasn't going to do anything he was told to do, and he didn't care, et cetera. Butch said something that I think was probably innocuous, but I was too busy at the time to catch what it was. Then Brown told A he was going to do what he was told to do which, of course, A didn't like and started to make some noise.

"At this point John Lee, who had been there throughout the whole thing, poked his nose into it. In the meantime, two or three girls in the neighborhood came up and John Lee and A started exchanging remarks. I pushed John Lee and A and, at this point, Charlie Brown, apart. John Lee said let's get down on the street and we will settle it. I told everybody okay, we will break, so we turned off the lights. They disappeared. Then Bat and Leach said they were going to go down and stop it. They went, and Butch and Marvin stayed with me. We took down the equipment and put it into the car and listened to the scuffling down below.

"Student A ran back up and then ran back down. By this time we had the gear put away. When I went down, John Lee was coming across the street with something that looked like a piece of tin in his hands. A was lurking in the background. He came across the street. John Lee disappeared. At this point, two squad cars pulled up. Someone had phoned that there was a fight. A had a knife, which he tossed in someone's backyard. Charlie Brown had a car aerial in his hands. John Lee's knife looked like a biscuit tin. It was hard to tell. All these weapons seemed to disappear before the police squad car arrived. A was cursing John Lee and Charlie Brown. I told these people that they would have to straighten this out among themselves, that I would be there on Saturday morning at ten o'clock on the playground. If they were ready they would start filming

again. If they were not going to be there and did not straighten the matter out, then the project would be over.

"Haskins called and said he had some discussion with the group. A called and apologized. He said, "Phil, do you know who this is?" and I said, "I guess it's A." He said, "We got things straightened out," and I said, "I figured you would. You did get your license, didn't you?" He said, "Yes." I said, "I'll see you Saturday morning. I'll call Butch tomorrow morning and tell him I will pick him up Saturday morning in Germantown, as I usually do."

Evidence Related To Tumin's Process Sequence

Six possible results of exposure to a creative arts experience were suggested by Tumin; 1. having fun and 2. gaining skills in the art were the initial behaviors. Development of art-related skills is seen in the following segment from the director's log after two months into the project. His statement also reflects the growing objectivity of the members of the gang and their desire to make an authentic statement about what they knew best - "and the best thing we knew was gang war," said Student B.

The film instructor writes: "These kids two months ago didn't know what a movie camera looked like and it took them four or five hours, which includes set-up, moving, organization, dialogue, of actual shooting to do what will probably run two and half minutes on the screen. Now I've worked with people who are supposed to know something about the business, and sometimes it has taken us two days to shoot two and half minutes.

"For example, the kangaroo court has a set form. Three counselors, as they are called, sit on one side of the table and the plaintiff and the defendent sit on the other side of the table. The plaintiff, at the request of the counsel, makes the charge. Counsel then questions the defendent and then they make a decision.

"Peacock photographed this since Butch was on the counsel. He did a nice job of it. He set up the shots and one of them, shooting from the side where J. B. is sitting slumped with the hair rag around his head with some people in the background, is very nicely composed. The laboratory tells me by telephone that we have an image and that everything looks sharp and that work print will be shipped to me probably tomorrow."

3 and 4. Understanding self and peers.

The developmental model suggests that proficiency with some aspect of the art form may lead to a better understanding of the individual's relationships with his peers and an accompanying sense of

his own worth and an increased commitment to the work at hand. The cameraman asked Student B (now into the third month of the project) why the gang warred.

"He had no answer. He said he often wondered himself. He also said that seeing yourself on film was different from looking at yourself in the mirror. I asked him why, and he said he never thought he looked like any of his brothers, but when he saw the fellow down on the basketball court, he realized that he did look like his brothers. But what I think he is pointing at is the fact that when you see yourself on a motion picture screen, it is not the same as a mirror because you see yourself in a different perspective and role . . .

"Student B said that they had been sitting around talking on occasion and saying how lucky they were. I asked him why they were so lucky and he said that out of all the gangs in Philadelphia, or people in Philadelphia, all this was happening to them. So I said to him, 'I understand that the money means something to you, but let me ask you a hypothetical question. If there were no more money at this point, do you think they would continue to do as they have been doing in order to get the film finished?' And he said, 'Yes.' I believe him."

5 and 6. Positive orientation toward training and work.

The final stage of development in the hierarchy can be evidenced in overt behavior changes. The student's readiness for learning, his acceptance of discipline and work, and the increasing desire to gain status in his community and to behave in a socially constructive fashion can all be measured indirectly through observation of the student's overt behavior. In reference to Students A and B, an article in the NEW YORK TIMES, by reporter Judy Stone, gives evidence of these behavioral changes having occurred. As reported by the TIMES on October 13, 1968, Student B, and then Student A, reflect on their plans and activities after their first film is completed:

> "I wanted all the gangs to see it. To show that's what Twelfth and Oxford did. It makes you feel good doing something for your corner." When the film was shown on TV, four other warring gangs dug it, signed peace treaties, and asked how they could make films, too.
>
> It was also an exciting experience to get an enthusiastic response from people they had never met before. Sidney Poitier saw and admired THE JUNGLE at the recent New York Film Festival and decided to use A, B, and two other boys from the movie in his new film, THE LOST MAN, which is now being shot in Philadelphia.

"Why you all fighting? That's the main question," said B. "It seemed like the thing we doing was really worthwhile, but some people made it seem like we bad things to be on this earth. I just couldn't see why they didn't realize - they the ones with all the money. I think we doing more than all those city and government people. If we weren't never introduced to this thing and going around the country, we'd still be in gang wars."

Instead, twenty of them have started special night management course, financed by a $13,683 federal grant. The gang members are also starting neighborhood business ventures: installing laundromats and renovating old houses - with a strong financial boost from local business firms. B is working full-time for Twelfth and Oxford Film-Makers Corporation, and A for the Philadelphia Gas Works.

"No matter how big we get, we are going to stay in the neighborhood. That's the trouble right now. People rise up and leave their neighborhoods."

Although they have no illusion about becoming famous directors, they are working on their next film. It will be called WHY I DROPPED OUT OF SCHOOL. "We are going to expose the frauds. Show what they really like in schools, the paycheck teachers, teachers who say 'copy from page so and so.' They say 'I think you should take a trade,' when you want to go to college. It will be about teachers who don't teach anything and don't care about kids."

This saga of two young film-makers and the effects that participation in a performing arts project had on their lives can be duplicated many times over with the twenty other members of the gang. This sampling, however, will suffice as evidence in support of the hypothetical "process sequence."

A Test Of Three Hypotheses From Empirical Data

With reference to the film project initiated by the Simon Gratz students, which is serving here as an example of research in arts, the following hypotheses were proposed:

1. Hypothesis: Instruction in film-making will significantly increase the student's working knowledge of the subject matter.

2. Hypothesis: Individual attendance and punctuality records will improve as the instruction progresses with a concomitant increase

in number of minutes "given" to the project as students complete the third and fourth months.

3. Hypothesis: Attitudes will change toward education and work and increasing numbers of students will elect to continue their education.

The following evidence tends to support the above hypotheses. Pre-test scores on a multiple choice exam had a mean of twenty-five percent (25%). A post-test mean score of eighty-two percent (82%) correct was recorded after a four month period of instruction.

Daily attendance increased from seventy-six percent (76%) for the first month to one hundred percent (100%) in the final months. The gang established 9:00 A. M. as their meeting time, anyone arriving at 9:01 A. M. was discharged from the project. No tardiness occurred after the second month. As the editing stage of the project approached, the funding ran out. All members of the gang elected to proceed without compensation.

A transcript from a taped session three months into the project reads as follows: "I feel now that if we put our minds to anything, we can do it. When the project first started, I thought we were having a lot of heartaches and troubles, but once we got panned out and proved what we could do, we worked together. I believe it would turn out all right and we can work another project with other younger boys." Both leaders of the gang found jobs approximately one month in the project. Four others followed immediately after. Now all twenty are productively employed and in night school.

## Need For Continued Research In The Arts

While artists are notoriously anti-research, there is a need to be accountable in the programs designed for the young and disadvantaged. This accountability involves both evaluation, objective research, and feedback. For evaluation purposes, the program designer must consider his goal objectives, how he is going to make them happen, and how he will know what is actually happening - both during and after the various phases of his program. As with the Twelfth and Oxford Street program, this in-process and summative evaluation process can serve as direct feedback for the improvement of the on-going program and the implementing of new.

## SECTION IV / CONCLUSIONS AND RECOMMENDATIONS

The results of this study make one point rather conclusively. The view of the young black student as somewhat passive, apolitical, anxious for his share of the wealth and grateful for the chance to earn it, is no longer valid for vocational educators practicing in urban schools. The civil rights movement, black power, the War on Poverty, the Urban Coalition have started an irreversible trend toward self-determination and self-direction that has changed minority students. Rightly or wrongly, they anticipate a new era that will not only allow them to enter the mainstream of society but to get a good piece of the action as well.

The major significance of the activity sponsored under the aegis of this research was that students given the open and accepting climate of a peer group dominated environment could effectively critique instructional programs and the broader goals surrounding vocational training. By giving a free rein to the sentiments that black students held toward career ladder concepts and vocational guidance, the investigators were led to a constructive and viable program alternative which advocated the arts as an adjunct to vocational training. The results of the Twelfth and Oxford Street experiment would suggest the validity of the new strategies the students proposed.

What can be concluded from the pilot film-making program that was launched with student recommendation? The results, while limited to a population of twenty school dropouts, support Tumin's conceptualization of a process sequence or sequence of behavioral changes that typifies an alienated student's progress through an arts experience. The data, taped transcripts, and longitudinal study of individual member's development reflect these in-process changes. The real successes enjoyed in finding employment, schooling, and in launching new entrepreneurial activities would seem to suggest that the final stage of Tumin's "process sequence" had been broached - i.e., becoming more open to learning and developing a more positive orientation to work. Yet the basic question of how replicable this approach might be to other fighting gangs or groups of alienated young people is open to further research. The present study is considered a pilot effort leading, hopefully, to continued study.

The following recommendation is based on the results to date in this pilot venture:

Recommendation One. Initiate longitudinal study of several well-established inner city arts programs seeking further evidence in support of Tumin's process sequence and reflecting (a) changes

in attitudes and overt behavior toward schooling and productive employment; (b) career decisions; (c) general social conduct. Design and implement controlled studies which relate the arts to vocational training and compare the traditional modes of vocational training and career guidance with experiences in dance, theatre, film-making as an alternative approach to decision-making about future career and work. The tentative thesis should be considered that the student's capacity to enter society as a productive member may depend first on his sense of personal well-being and his ability to communicate and then upon career guidance and training in vocational subject matter, at least for late maturing black students. As an adjunct to vocational training, the arts could become a productive means to self-actualization and self-understanding.

One of the goals for the film-making project called for recommendations regarding certain procedures for conducting a successful arts program for alienated youth. In effect, the procedures that had been set forth by the student evaluators themselves (see page thirty-nine) consituted the initial guidelines for designing the approach to the film project. These specified (a) paid participation; (b) self-direction in setting rules and regulations for group conduct; (c) establishment of training procedures and determination of film content through joint deliberations of gang members and their professional consultants. These rules, plus the following admonitions, then serve as basic recommendations for similar undertakings:

Recommendation Two. In the initiation of an arts experience for school dropouts or for students who hold negative attitudes toward formal education, make certain of the following:

a. First contact with the art form and its related technology (if there is such) should be rewarding and fun - offering immediate opportunity to each participant to get involved.

b. Course material should be designed with short-range objectives so that immediate goals can be readily perceived and achieved.

c. The work environment should be informal and easily accessible and in no way resemble a school situation.

d. The artist/instructor in charge should be a professional, preferably with common ethnic and socio-economic background as his students, but regardless of race or origin, he should be a charismatic person who is able to extraordinarily communicate with young people.

In the curriculum evaluation phase of the study the results of the criterion tests showed evidence of unequal teaching effectiveness of the two instructional packages in content areas related to certain quantitative skills - i.e., math and measuring. The significant differences in post-test results for the two experimental groups would seem to support the hypothesis that tutorially revised material - a process that encourages maximum student participation in the formative evaluation phase of curriculum development - has more relevancy in terms of improved learning performance by black students with low reading, math, and I. Q. scores than does material modified on the basis of teacher recommendations alone.

Other questions were raised in the original prospectus regarding the two evaluative procedures. The first of these related to a comparative assessment of the value of the different modication and validation strategies to curriculum materials which focus on verbal, quantitative, and/or manipulative skills. Unfortunately, because no final empirical test was possible of the units involving speech, writing and reading skills, it is difficult to make such an assessment. Student evaluators in the tutorial sessions responded with greater consistency to the teaching effectiveness of the materials covering the more quantitative subject matter, but this may have been a factor due more to the lack of goal controversy surrounding these topics than to the appropriateness of evaluative procedure. The students were considerably more loquacious in their review of the essentially verbal units, but their feedback was primarily of a judgmental nature calling for changes in the overall objectives and improvements in the authenticity and face validity of the instructional units. The kinds of evaluative statements anticipated in the original design were encountered only during work with the math and the measuring skills units. Because these inputs made improvements in the organizational and structural modifications of the math and measuring units, the tutorial procedure can be considered a productive tool. Whether or not a combination of authors, teachers, and trained student evaluators working constructively together in the origination of new instructional programs is even more productive than student evaluation alone is a subject for further research.

Two of the instructors who served as observers during the summer's tutorial sessions and earlier as proctors remarked that classroom observation by itself - even supplemented by study of diagnostic test item responses - did not yield as many insights into the structural weaknesses and inherent assumptions of the instructional units as did the iterative test, rework, and re-test procedure of the tutorials. One teacher/proctor remarked, "That which I formerly considered beneath my attention is now particularly stressed. I no longer leave out bits of information the student should have. I

make sure he gets it now, even if it has been part of the curriculum for the last six or eight years."

The third recommendation which can be drawn from the research touches on the tutorial approach as related to the creation of new instructional manuals and texts:

Recommendation Three. The method of individual tutoring and iterative revision is recommended as a formidable tool in the hands of an author of new material which it is still fluid and in process of development. Improvements will be effected in making the units more responsive to individual differences and in designing alternative strategies for those with culturally different backgrounds. In using the tutorial method for observing the learning problems of disadvantaged students, care should be taken to acquaint the student evaluators with the goals of the instructional programs prior to the tutoring. Extensive training with graduated experience in communicating learning problems should be planned. Finally, when working with black students as evaluators, a black observer and black tutor become a necessity.

Given the above recommendations, the tutorial process of curriculum evaluation and review may yet prove to be an effective means of relating certain structural features or strategems to program effectiveness. Insofar as the present study is concerned, the feedback and data collection problems related to the tutorial observations did not constitute an adequate test of this method as a data bank generator.

An appraisal of attitudes of both student and instructor/evaluator toward the research methodology followed during the curriculum evaluation phase left the investigators with encouragement for future studies. When asked how they responded to the individualized approach to learning, all students answered in the affirmative. They particularly enjoyed the informality of the learning environment and the fact that teachers or tutors did very little talking unless spoken to. A typical student response was, "I like it better here than upstairs in the classroom because to me you have more freedom down here. When you ask a question, you get a straight answer, but when you upstairs, they have too much to say and so I say this is a nice place to do your work."

Tutors selected from nearby Temple University had equally favorable reactions to the tutorial methodology: "The students and tutors worked as a team, both learning from each other as well as from the materials. After day to day contact, the student and tutors became familiar with each other and very quickly found themselves

the best of friends . . . they could become frank and straight to the point when they talked about the programs." Another said, "Being part of the project, re-evaluating material for the revising of textbooks for the Philadelphia Public School System, has turned out to be one of the most electrifying experiences of my life."

Equally favorable terms were used by the teachers. The only negative input was from white observers caught between the fires of debate over goals and methods for turning black students on to career-oriented decisions. As a result of this feedback, the following is recommended:

Recommendation Four. Vocational and secondary school educators should encourage action research of the variety that involves the student population as researchers and educators as observers. Thus, research can become an early recruitment strategy for future teachers and a renewing process for experienced faculty.

The late Abe Maslow cited the fact that important changes occur within the individual who identifies himself with meaningful work. This identification process, he argued, was a way of overcoming human shortcomings and environmental barriers. Through mutual participation in research, teachers and students can better understand each other and their mutual endeavors.

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# APPENDIX A

## Educational Objectives

## LIST OF OBJECTIVES OF COMPLETE UNIT

UNIT I - JOB SEARCH

(1) Story on boy with personal contact

(2) Questions on story

(3) Question sheet asking student to provide information on how many people he knows who got their jobs by personal contact.

(4) Jobs by other means

(5) Yellow pages and employment agencies

(6) Story on Want Ads in newspaper

(7) Questions on story

(8) List of most common abbreviations in the newspaper.

(9) Story on young man who went to City Hall to find a job.

(10) Questions on story

(11) Review

(12) All benefits on job to be listed such as salary, education, vacation, medical insurance, etc., unions to be explained.

(13) Student to choose his own job out of the newspaper

(14) Student to evaluate his job choice in terms of salary, hours, education, etc.

(15) Job offers in three parts dealing with the beginning limited training eighth grade, middle to twelfth grade, and lastly some college or night school pointing out the value of job experience and education and increased salary.

(16) Job offer in three parts.

CLERK-MALE ONLY

(17) Job offer in three parts.

HOSPITAL AIDE

(18) Job offer in three parts.

LIBRARY ASSISTANT

(19) Student to choose his own job with 1st 2nd, and 3rd choice.

(20) Job description evaluation to enable the student to give reasons for doing the type of work he chose.

UNIT II- MAP READING

(1) To begin with motivational game on a map to start the student getting across the City.

(2) Use of city survey map student to find well known landmarks by using the co- ordinate system.

(3) PTC maps to be used by student to familiarize himself with the bus and subway system.

UNIT 111- TRAVEL SKILLS

(1) As a result of material used in the map reading the student must be able to find his way around the city using the subway the railroad, the bus, and automobile.

(2) Student to be sent on an actual journey from the school to a certain building in centre city to pick up an application form using one method of transportation to get there and a different method to return.

## OBJECTIVES OF THE SPEECH UNIT

The general objective of the unit is the improvement of the basic speech and language-using ability of the student.

### UNIT I BASIC STANDARDS OF GOOD SPEECH

The unit aims to familiarize the student with the basic standards of good speech in order to evaluate his own speech.

More specifically the student will:

1. be able to choose from a tape recording of interview situations the three best speakers out of the five presented.
2. be able to listen to a tape recording of a speaker and list at least eight out of ten points of incorrect speech.
3. be able to listen to a tape recording of his own voice and list his errors on the basis of the standards he has learned.
4. be able to listen to a tape recording of several speakers and to list five out of six points of correct and effective speech.

(OBJECTIVES CON'T)

UNIT II DEVELOPMENT OF SPEECH SKILLS

The unit aims to assist the student in the development of skills which will enable him to improve and adapt his speech to more formal speaking situations, such as a job interview.

More specifically the student will:

1. be able to correct errors in intelligibility.
   A. Pronunciation (slurring, syllabication recognition of errors)
   B. Fluency (hesitation)
2. be able to correctly break down 80% of a given list of words into syllables.
3. be able to correctly identify 80% of mispronunciations in a given taped passage.
4. be able to correctly pronounce 80% of a list of most commonly mispronounced expressions.
5. be able to respond to a list (approximately five questions) without prolonged hesitation. The student will be graded on a scale of mild, moderate and severe hesitation, and must score in the moderate range.

(OBJECTIVES CON'T)

UNIT III THE JOB INTERVIEW

The unit aims to prepare the student to answer eight out of ten standard job interview questions without prolonged hesitation, mumbling and mispronunciation within an interview.

WRITING UNIT

Gail C. Leandri
September 14, 1966

## OBJECTIVES OF THE WRITING UNIT

UNIT I This unit is designed to provide experiences which will stimulate the learner to freely express himself in writing in a manner consistent with the requirements of a standard high school English course.

More specifically the student will:

1. Given two taped stories be able to select one and write a reason or reasons for his selections.

2. Given the typed copies of the stories be able to write answers to several questions about one story and pick out various errors in the other.

3. Given a point system to work with be able to grade and correct the errors he cited in poorly written paragraphs.

4. Given a similiar situation to the taped stories be able to write a story, record the story and play it back.

5. Being referred to the point system be able to grade and correct or rewrite the story he had just written, recorded, and heard.

6. Given two topics, "Would you believe I am...." and "Would you believe I am going to be....", be able to write about himself using two separate pictures of himself and later be able to grade and revise both.

7. Given a list of jobs be able to select two jobs for which he holds the qualifications and interest, then list his qualifications and fill in form letters requesting a job application and a job interview.

8. Given the form letter to be used as a model be able to write two letters requesting the job application and the job interview, be able to address the envelope and mail the letters.

WRITING UNIT

Gail C. Leandri
October 10, 1966

## OBJECTIVES OF THE WRITING UNIT

UNIT II This Unit is structured to provide necessary experiences in filling out a job application which will enable the learner to complete most job applications.

More specifically:

1. Given a definition and explanation of application and applicant the student will be able to fill in several blanks indicating both.

2. Given situations and episodes the student will be able to react to and expand upon various ways of presenting names and addresses of the applicant.

3. Given examples of statistics involving sex, height, weight, etc., the student will be able to state his own vital statistics.

4. Given general explanation of health record and what it entails the student will be able to complete blanks and check lists of health information pertinent to the applicant.

5. Given a specific story about citizenship, race, religion, parents and/or guardian, and military status, and given specific definitions and situations the student will be able to complete both fill ins and situations with his own statistics.

6. Given various ways of explaining the education accomplishments of a given person the student will be able to complete various examples of his own accomplishments.

7. Given definitions and explanations of hobbies and what they entail the student will be able to complete a section of the application devoted to hobbies.

(Objectives Con't.)

8. Given a typical employment record with definitions and situations the student will be able to complete an employment record with hypothetical employment and his true experiences.

9. Given a story involving the law and its codes the student will be able to react to specific situations and fill in blanks involving criminal record. Also, given explanation of bonding the student will be able to fill in blanks pertaining to bonding.

10. Given typical questions that have been asked on application forms concerning desire for particular job, company applying to, qualifications and relatives employed by said firm the student will be able to write in sentence form a reaction to these particular questions and specific situations.

11. Given a particular incident involving a job and its requirements the student will be able to extract exact meaning and definition of the job requirements.

12. Given explanation and definition about references and signature the student will be able to complete various fill ins.

13. Given a typical application form the student will be able to fill it out completely.

OBJECTIVES: Writing Unit
Unit III

Part I

1. The student should be able to fill in the required information on a W-4 Form for each of the following specified situations (given a name, address, Social Security Number, and date):

   a. a single person claiming himself

   b. a married girl whose husband claims only himself

   c. a married man with a wife and four dependents

2. The student should be able to answer the following questions:

   a. What is a refund?

   b. What is a dependent?

   c. What is an exemption?

Part II

1. The student should be able to fill in the required information on an Income Tax Return, Form 1040A (given a name, address, Social Security Number for husban d and wife, dependent's names, employer's name and address) for a man who:

   a. has a wife and uses a joint return (the wife doesn't work)

   b. has three children

   c. has a dependent mother who:

      1) lived with him for the entire fiscal year

      2) received only $20 outside income

   d. has a salary of $4880

   e. has a Savings Account which yields $20 annual interest

   f. has claimed 6 exemptions (given a Tax Table, he figures out his tax due)

   g. has had $145 withheld (he is told that a W-2 Form which he would automatically receive from his employer would show this)

Part III

1. The student should be able to fill in specified information which would very likely be requested on a Loan Application Form:

   a. Given a situation in which a house has been purchased, a mortgage taken, and the mortgage is being paid off at a given monthly rate, the student should be able to fill in the following:

1)

| Landlord or Mortgage Holder | Address | Monthly Payment | Amount of Mortgage |
|---|---|---|---|
| | | | |

2)

| Property | Street Address | Market Value |
|---|---|---|
| | | |

b. Given a Mortgage Holder (and the amount of mortgage left to be paid and the monthly payments) and a list of Charge Accounts (on which no money is owed), the student should be able to fill in the following:

1)

| Creditor (Name and Address) | Balance Outstanding | Monthly Payments |
|---|---|---|
| | | |

Part IV

1. The student should be able to fill in the required information on a Social Security Application Form (pretending that he is applying for himself).

Part V

1. The student should be able to fill in certain required information which would very likely be requested on a Mail-Order Form:

a. Given an item (and the choice of ordering one or twoof the item) -- the catalogue number, the color choices, the price and weight, the student should be able to fill in the following:

1)

| Cat. No. | Name of Item | Indicate Color if applicable | How Many | Total Price | Total Weig |
|---|---|---|---|---|---|
| | | | | | |

Part VI

1. If the student already has a Driver's License, he will skip this part. Otherwise, he should be able to fill in the required information on an Application for a Learner's Permit (pretending that he is applying for himself).

OBJECTIVES: Writing Unit
Unit IV

Part I

Over-all Objective: To differentiate between slang and standard English (the slang in the unit is primarily Inner-City vernacular)

Specific Objectives:

1. The learner must be able to list three types of slang

   a. lazy speech

   b. ordinary words with new meanings

   c. completely new words

2. The learner must be able to recognize these three types of slang and pick them out of written sentences

3. The learner must be able to define the word "definition"

Part II

Over-all Objectives: To introduce the importance of word selection in expressing oneself and in adding realism to one's writing. To introduce dialogue and description.

Specific Objectives:

1. The learner must be able to translate material written in slang into a standard English version. He may use the Slang Dictionary.

2. The learner must be able to explain what dialogue is.

3. The learner must be able to write dialogues on the same situation, but from different points of view -- modifying the speeches according to the character being spoken to.

   a. To write as if speaking to a friend.....

   b. To write as if speaking to a parent.....

   c. To write as if speaking to a teacher.....

   d. To write as if speaking to a job interviewer.....

4. The learner must be able to recognize as absurdly dull, a descriptive passage -- one, for instance, in which each sentence is of the subject-verb-object form. To specify better, here's the example used:

   "The boy threw the ball. The ball bounced into the street. A car ran over the ball. The boy ran after the car. The car stopped at the corner. The driver got out of the car. Tkhe boy screamed at the driver. The driver went into the

# OBJECTIVES FOR MATHEMATICS SKILLS UNIT

## GENERAL OBJECTIVES

1. The mathematics unit aims to help the student gain an understanding of, and ability to perform, the four fundamental arithmetic operations (addition, subtraction, multiplication, and division) on whole numbers, decimals, and fractions and the concept and use of percentage.

2. The unit aims to develop a full understanding of the mathematical principles underlying the fundamental operations.

3. The unit aims to develop mathematics skills which inner-city youth use, and will use, in their everyday lives both on and off the job.

4. The unit aims to increase the student's interest and confidence in the use of mathematics.

## SPECIFIC OBJECTIVES

1. The unit aims to prepare the student to score over 80% on a criterion test covering the following items:

   a. Addition involving addends of multiple digits - up to seven digits, including decimal and money problems.

   b. Subtraction involving numbers of up to seven digits including decimal and money problems.

   c. Multiplication involving factors up to four digits, including decimal and money problems.

   d. Division involving dividends of up to seven digits and divisors of up to four digits, including problems involving decimals, fractional remainders, whole number remainders, and money.

   e. The concept of a fraction involving the identification of equal and non-equal parts of a whole and recognition of a fraction as a division problem.

   f. Addition of fractions involving finding a common denominator in problems containing up to four fractions.

(Objectives Con't.)

g. Subtraction of fractions involving finding a common denominator.

h. Multiplication of fractions involving reducing the answer to lowest terms.

i. Division of fractions involving reducing the answer to lowest terms.

j. Finding the per cent of a number and finding a number when given a per cent of that number.

k. Conversion of mixed numbers to fractions and vice-versa.

l. Word problems involving recognition of the necessary manipulations and their correct sequence. (Many of the problems under the eleven points above will be in the form of word problems.)

CM:
15 August 1966

## OBJECTIVES OF MANIPULATIVE SKILLS UNIT

UNIT I MEASUREMENT

1. To be able to determine the discrimination of a ruler whose scale is divided into either of four commonly-used English Measuring System Units (1/2", 1/4", 1/8", 1/16").
2. To be able to determine the dimensions of objects with a ruler or tape measure whose scale discrimination is one of four commonly-used English Measuring System Units (1/2", 1/4", 1/8", 1/16").
3. To be able to determine the dimensions of objects using inside and outside calipers and a ruler whose discrimination is one of four commonly-used English Measuring System Units (1/2", 1/4", 1/8", 1/16").
4. To be able to determine the dimensions of objects with a one-inch micrometer whose scale discrimination is one one-thousandth of an inch.

# APPENDIX B

## Outlines For Curriculum Units

# SPEECH UNIT
# (TAPE RECORDING OPERATIONS)

## UNIT I

### JOB 1 OPERATING THE TAPE RECORDER

Specific instructions for operating the tape recorder will be presented orally and in written form. Pupils will demonstrate ability to operate tape recorder

MATERIALS AND EQUIPMENT:

- Tape recorder
- Tapes
- Operating manuals for tape recorders
- Earphones
- Work Booklets

### JOB 2 LISTENING TO MUSICAL TAPES

A series of taped musical selections will be presented. Pupils will express their opinions of selections which will be recorded on tape.

MATERIALS AND EQUIPMENT:

- Pre-recorded tapes (Musical Selections)
- Tape recorder
- Earphones
- Work booklet
- Tapes

(TAPE OPERATIONS CON'T)

JOB 3 DEVELOPMENT OF CRITERIA FOR GOOD SPEECH

Tape recorded reasons for good speech will be presented.

Pupils will, on separate pieces of paper, list reasons why speech is important.

MATERIALS AND EQUIPMENT:

Tape recorder

Pre-recorded tapes (good Speech Elements)

Earphones

Work booklet

JOB 4 LISTENING TO ON-THE-JOB-TAPES

A tape recording of job related speeches will be presented.

Pupils will listen and make a list of reasons why each speaker talks as he does.

MATERIALS AND EQUIPMENT:

Pre-recorded tapes - (Job Related Speeches)

Tape recorder

Earphones

Work booklet

(TAPE OPERATIONS CON'T)

JOB 5 LISTENING TO JOB INTERVIEW TAPES

A tape recorded job interview will be presented. Pupils will judge on the basis of their own experience the relative rating of the speakers.

MATERIALS AND EQUIPMENT:

Pre-recorded tapes - (Short Interview Tapes)

Film

Projector

Tape recorder

Earphones

Work booklet

JOB 6 SPEECH STANDARD ELEMENTS INTRODUCED

Good speaking habits

Bad speaking habits

Students must evaluate interview tapes in relation to standards.

MATERIALS AND EQUIPMENT:

Work booklet

Pre-recorded tape - (Interview Tapes)

Tape recorder

Earphones

(TAPE OPERATIONS CON'T)

JOB 7 LISTENING TO STUDENT TAPES

Tape recordings of the opinions and answers on the musical selections.

Pupils will evaluste speech from point of view of a job interviewer-using standards.

MATERIALS AND EQUIPMENT:

Pre-recorded tapes - (Students Opinions on Music)

Tape recorder

Work booklet

Earphones

Film - projector

JOB 8 STUDENT TAPES

Pupils will match student speakers with designated jobs.

MATERIALS AND EQUIPMENT:

Pre-recorded tapes - (Student Opinion on Music)

Tape recorder

Earphones

Work booklet

(TAPE OPERATIONS CON'T)

JOB 9 TAPES OF SEVERAL SPEAKERS

Several job related speakers will be presented. Pupils will evaluate tapes in relation to speech standards.

MATERIALS AND EQUIPMENT:

- Pre-recorded tapes - (Job Related Speeches)
- Tape recorder
- Earphones
- Work booklet

JOB 10 TAPE RECORDING OF STUDENTS VOICE

Student must record passage.

MATERIALS AND EQUIPMENT:

- Tape
- Tape recorder
- Work booklet

JOB 11 TAPE OF STUDENT VOICE

Pupil will evaluate their voice on the basis of speech standards.

MATERIALS AND EQUIPMENT:

Tape-pre-recorded - (Students Voice)

Tape recorder

Earphones

Work booklet

## WRITING UNIT

UNIT I

Activity 1 Writing a reaction to two taped stories about finding a job. One will be grammatically correct and one will contain eight errors exemplifying eight types of mistakes, (only some of which will be audible). The student will select the story he thinks is the better written and give reasons for his selection.

Activity 2 Writing a reaction to the grammatically correct taped story.
The student will read the story he had heard on tape and answer questions concerning its content and structure.

Activity 3 Citing errors in story containing mistakes
The student will read the story and list as many errors as he can find. He will then be given a list of the eight errors in the story with an accompanying explanation of the type of errors each illustrates.

Activity 4 Introducing the point system for grading
A point system based on the eight types of errors will be introduced to the student. He will then do exercises which will give him practice in using the point system.

(Unit I Activities Con't.)

Activity 5 Grading and rewriting papers for practice in using the point system

The student will be given several poorly written stories which he will have to grade in accordance with the point system. Then he will rewrite them correcting the mistakes.

Activity 6 Writing and taping a story

The student will be given a situation similar to the one which was presented in the taped story around the situation. He will then tape the story.

Activity 7 Listening to, grading, and revising his own work

The student will listen to the tape recording of his story. He will then look for errors in his story and grade it according to the point system. He will rewrite the story and it will be xeroxed.

Activity 8 Writing about himself as he is

The student will be given a picture of himself and, with the aid of a general outline, be asked to write on the topic "Would You Believe I Am...." The picture and the essay will be xeroxed together.

(Unit I Activities Con't.)

Activity 9 Writing about himself as he would like to be

The student will be given another picture of himself and, with the aid of an outline, be asked to write on the topic "Would You Believe I Am Going To Be...." This will also be xeroxed with the picture and returned to him.

Activity 10 Grading and rewriting the essay "Would You Believe I Am...."

The student will look for errors in his essay and grade it using the point system. He will rewrite it.

Activity 11 Grading and rewriting the essay "Would You Believe I Am Going To Be...."

The student will grade and rewrite this essay.

Activity 12 Listing jobs and qualifications

The student will be asked to list several jobs and from these select the jobs in which he is interested, and feels he is or will be capable of doing. Beneath each he will list his qualifications.

WRITING UNIT

UNIT II

Activity 1 Filling in several balnks about the terms application and applicant

The student will be given several fill ins which will enable him to distinguish between the terms application and applicant.

Activity 2 Writing the applicant's name

The student will be given several short episodes about a hypothetical person to enable him to see the various methods in which he can fill out an application using his own name.

Activity 3 Writing the applicant's address

The student will be given several different forms which involve the address of an individual. The student will then write his own address on various applications.

Activity 4 Stating the applicant's vital statistics

The student will be introduced to the various terms which describe him. He will then state on an application his statistics such as height, weight, and sex.

(Unit II Activities Con't.)

Activity 5 Filling in health record

The student will be given a story from which certain health data about a particular individual can be obtained. He will answer specific health questions about that person on a given form, then complete a similar health record about himself.

Activity 6 Stating specifics about race, religion, citizenship, parents, and military status

The student will be asked his position and status through completing fill ins.

Activity 7 Stating educational accomplishments

The student will be given various examples of individuals who have completed a certain amount of education. The student will be asked to list the educational accomplishments of these individuals and from the various methods used be able to list his own accomplishments.

(Unit II Activities Con't.)

Activity 8 Listing hobbies

The student will be given a story which contains various hobbies of a particular individual. He will answer specific questions about the hobbies and then list his own.

Activity 9 Filling out an employment record

The student will be given several examples of different work experiences in which he will be asked to complete the blank spaces. Then the student will complete his own form.

Activity 10 Filling in blanks about criminal records and bonding

The student will be given a story from which certain legal actions and bonding data about a particular individual can be obtained. He will then answer specific questions about that person on a given form. Then he will complete similar questions about himself.

(Unit II Activities Con't.)

Activity 11 Writing a reaction to specific questions such as desire for a particular position, firm, or salary

The student will be given two stories where each of these questions will be made quite obvious. The student will be asked to state in his own words why he felt that the individuals wanted: 1) particular position 2) particular firm and 3) particular salary.

Activity 12 Writing a reaction about job requirements

The student will be given a particular incident where the job and its requirements are explained. The student will extract the exact meaning of job requirement from the incident.

Activity 13 Listing references and signing a signature

The student will be given definitions through a story of what both reference and signature mean. From the story he will also be asked several questions about each. Then the student will be asked to list his own references and sign his own name.

Activity 14 Filling out an application.

The student will be given a typical application to complete. He will be given the situation of looking for a job, finding one that interests him and finally being faced with filling out its application blank.

EXPANDED OUTLINE FOR MATHEMATICS SKILLS UNIT

INTRODUCTION

ADDITION

A. Simple addition problems (no carrying)

1. Why bother studying addition?

   a. avoid being cheated

   b. work as a clerk, etc., using math

2. money board should help understanding (picture of board)

3. Example 1. addition of ones. Lemonade stand will explain use of money board.

4. Example 2. adding up footballs by football manager. (Pennies can stand for other things than money.) Use money board (MB)

5. Example 3. Clerk in five and dime adding two digit numbers on MB. (no carrying)

6. Example 4. Service station pump man adding three digit numbers on MB. (no carrying)

B. Horizontal notation

1. Horizontal notation: $\begin{array}{r} 4 \\ +5 \\ \hline 9 \end{array}$ same as $4 + 5 = 9$

2. New way to write numbers: $23=20 + 3$ (as on money board with 2 dimes and 3 pennies)

3. Example 1. Shopping in a grocery store: adding two digit numbers with new notation on MB.

i.e. $\begin{array}{r} 30 + 4 = 34 \\ +20 + 3 = 23 \\ \hline 50 + 7 = 57 \end{array}$

(Expanded Outline Con't.)

C. Regroupment (carrying)

1. Adding one digit numbers whose sum is greater than 10. Buying fruit in store for 5¢ per piece - adding up number of pieces of different fruits.

   a. Explain use of MB for this. (When there are more than 9 coins in any answer slot, ten of them must be traded at bank for a larger coin.)

2. Adding two digit numbers whose sum is greater than 100. Paper boy adding up customer's total bill for two weeks (e.g. Sunday papers cost 50¢ and daily 95¢)

   a. Use MB and horizontal notation on chalk board to parallel movements of coins on MB to firmly establish principle of regroupment.

3. Lots of practice in carrying with two and three digit problems on MB to firmly establish principle of regroupment.

4. Wean student from MB with problems using just the chalk board but with the MB alongside to be used if he has difficulty with the numbers written on board.

5. Then do problems on paper away from MB.

D. Decimals

1. Simply renumber the columns on the MB (i.e., 1¢ = 1/100 of a dollar, 10¢ = $ 1/10, 100¢ = $1)

2. Do problems buying and selling as a customer and clerk where he must add money in terms of dollars instead of in terms of cents.

3. Expand principle of same decimal point placement in answer as in problem and all decimal points lined up vertically to other problems with decimals.

(Expanded Outline Con't.)

MULTIPLICATION

A. Discovery of Multiplication

1. Column addition of more than two numbers - total distance to a city by adding smaller distances between intermediate cities - student is driving his car. (three numbers only at first - then expand to four and five numbers - start with two digit then go to three digit numbers.)

2. Column addition of the same number - e.g., how many students in school if there are four classrooms and 30 students in each classroom? How many wheels are there on all the cars parked on the street? Notice that a short cut to adding the same number over and over would be a help.

3. Use drawings of groups of objects (like Batman) to illustrate grouping of objects in equal groups that can be added.

4. How many are four groups of three pin-ball machines (diagrams and multiple addition)? The problem can be written using a new process called multiplication (after multiple addition) which allows addition of the same number many times without adding.

Thus:

$$\begin{array}{r} 3 \\ 3 \\ 3 \\ +3 \\ \hline 12 \end{array}$$

is the same as:

$$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$$

The problem is: how many are four threes? It can be done by adding threes up four times or by multiplying four times three.

B. Learning Multiplication Facts

1. Teach the facts as individual problems, not as facts to be memorized.

   a. Table looks complicated but isn't since students know many of the facts and there are only half as many as it looks like there are.

   b. fives are easy - just count by five.

   c. twos are easy - just count by two.

(Expanded Outline Con't.)

d. All problems with an even number in the problem will have an even answer.

e. Nines - tens digit in product (after 2x9) increases by one: 1,2,3,4, etc.

f. Squares - teach them as a series themselves. 1,4, 9,16,25, etc.

g. Use diagrams of groups to illustrate multiplication facts.
e.g., XXXX illustrates 3 x 4 = 12 and
XXXX
XXXX 4 x 3 = 12

For groups draw pictures of things that interest these students. (not apples)

C. Doing Problems

1. Simple multiplication problems

a. Illustrate that multiplication problems can be worked in either horizontal or vertical notation.

b. How many eggs are in three dozen eggs? (1 dozen = 12)

1. $\begin{array}{r} 12 \\ \times\ 3 \end{array} = \begin{array}{r} 2 \\ \times\ 3 \end{array} + \begin{array}{r} 10 \\ \times\ 3 \end{array}$

$3 \times 12 = (3 \times 2) + (3 \times 10) = 36$

i.e., multiply three times ones place and then three times tens place.

2. How much money do you have if you have five quarters?

a. $25 \times 5 = (5 \times 5) + (20 \times 5) = \$1.25$

c. Continue with more problems involving multiplying two digits or more by one digit.
(The problems should be based on probable stories within these students' realms of concern.)

d. Note that carrying in multiplication is the same as in addition.

(Expanded Outline Con't.)

2. Multiplying by two digits

   a. How many students are there in a school with thirty-one classrooms and 32 students per classroom?

      $31 \times 32 = (1 \times 32) + (30 \times 32) = ?$

      i.e., if the problem is broken down into two problems so that the student multiplies by the ones place and then by the tens place and adds the results it should be clearer than learning the method by rote.
      (Have them find out how many classrooms and students per classroom there are here at Gratz and work the problem using those figures. (Caution: be prepared for a riot if the figures show how bad the overcrowding is.)

   b. Continue with more problems of this kind.

3. Multiplying by three digits (and more)

   a. If the bus driver makes 242 trips a year between Philadelphia and Detroit (425 miles) how many miles does he drive in a year?

      $242 \times 425 = (2 \times 425) + (40 \times 425) + (200 \times 425) = ?$

   b. Other problems can be worked in the same manner.

4. Decimal multiplication problems.

   a. Present the rule: count out as many decimal places in the answer as there are in the two numbers being multiplied.

   b. Do some exercises to fix the rule.

   Note: The writer is urged to find a more creative way to present this section.

# MANIPULATIVE SKILLS

## SECTION 1 - MEASUREMENT

OBJECTIVE-To develop the required basic skills and knowledge for the use of measuring instruments.

Unit I- PRE-TEST

A comprehensive test designated to determine the pupil's knowledge of fractions, decimals, the ruler

Unit II- FUNDAMENTALS OF MEASUREMENT

(information and answer sheet)

Unit III- WORKBOARD AND BLOCKS

a. Description of workboard and blocks
(information and answer sheet)

b. Measurement with workboard and blocks
(Whole inches series)
(answer sheet)

Unit IV- BLOCKS AND DOWELS

a. Measurement with workboard and blocks sixteenths of an inch series.
(answer sheet)

b. Description of dowels.
(information of dowels)

c. Extension of sixteenths of an inch series
(answer sheet)

(Measurement Con't.)

UNIT V- BLOCK COMBINATION

a. Reduction of measurements to lowest common denominator using blocks
(answer sheet)

b. Smallest number of blocks necessary for a given measurement.
(answer sheet)

UNIT VI- WORKBOARD AND RULER

a. Description of workboard and ruler
(information and answer sheet)

b. Verification of readings on ruler using smallest number of blocks.
(answer sheet)

c. Lengths of unmarked block combination
(answer sheet)

d. Measurement of objects with ruler on workboard.
(answer sheet)

UNIT VII- RULER

a. Description of general ruler (1/16" scale and comparison with ruler on workboard. Practice set of ruler drawings. Student to indicate readings.
(information and answer sheet)

b. Measurements of lengths of assorted objects, screws, nails, etc.
(answer sheet)
1. using 1' ruler
2. using 6' ruler
3. using tape measure

(Measurement Con't.)

UNIT VIII- MEASUREMENT WITH CALIPERS

a. Description of inside and outside (information and answer sheet)

b. Measurement with outside calipers (answer sheet)

c. Measurement with inside calipers (answer sheet)

UNIT IX- COMPARISON OF TWO SYSTEMS OF MEASUREMENTS (base 10 and base 16)

a. Description of systems. Description of set blocks marked to 4 decimal places. (information and answer sheet)

b. Comparison of units of each system using blocks. (answer sheet)

UNIT X- ESTABLISHING ANOTHER MEASURING SYSTEM

a. Division of an inch into a number of parts. (information sheet ans answer sheet)

b. Use of ruler with 10 divisions per inch. (answer sheet)

UNIT XI- DECIMAL FRACTION SYSTEM OF MEASUREMENTS

a. Multiplication and division by tens (information and answer sheet)

UNIT XII- CRITERION TEST

UNIT XIII- TOWARD MORE ACCURATE MEASUREMENT

a. Description of screwboards (answer sheet)

b. Measurement with screwboards (answer sheet)

## APPENDIX C

Sampling Of Job Interview Script

Smith: Hello, I came to.....

Int: For an interview, right?

Smith: Yes, Sir.

Int: I'm glad you came -
Just make yourself comfortable - To begin with, what is your full name?

Smith: John Smith

Int: Well, Mr. Smith - Carlsbad Cavern Candies is a big company; we know all the problems of making candy and marketing it, but we still have the problem of recruiting new personnel.

My first objective in hiring new people is to make sure they will fit in.

Now - TELL ME SOMETHING ABOUT YOUR HOME LIFE. WHERE DO YOU LIVE?

Smith: OH---Well---I live in Philadelphia---I live with my Mother.

Int: Any brothers or sisters--

Smith: Yes, I have five brothers and sisters. My older brother is in the army, another is married and he lives away from home. My three sisters live at home.

Int: Fine....How long have you lived where you are now?

Smith: Oh gee, we've lived there...must be now...well it was ever since before I started high school, must be six years.

Int: I see...Where did you live before?

Smith: We lived in North Carolina, in Winston, Salem.

Int: That's fine. About school.....do you have a high school diploma?

Smith: Yes sir, I do. I graduated in....last June...in June, 1966.

Int: What was your area of study?

Smith: I studied business.

GO ON TO THE NEXT PAGE....

# APPENDIX D

Sampling Of Shooting Script

Sampling Of Film Script

Sampling Of Narrator's Script

SHOOTING SCRIPT

L. EXTERIOR...street/residential near party-house...evening... tracking shot...MSLeroy and Friend...ends with walk up to party-house

exterior...street...tracking from car...late afternoon (5pm) tracking car moves at a walking speed, just ahead of walkers.. ..camera above eye level...stops tracking at walkway to porch as boys walk up to door...holds this viewpoint as boys knock & wait, faint music from within heard

2. exterior...door of party-house...evening / porch-light... 2 shot Leroy and Friend with Char. opening door

2-shot of boys standing outside door, their lines delivered and door opens, Char seen and speaks her first line in 2=shot for - mat...music up as Char opens door

3. interior/looking out at person on front porch...just inside party-house door...CU Leroy...evening/porch-light

CU Leroy seen from within house (street-lights in Bkg) as Friend objects and Leroy raps with Char...

4. exterior/looking in at person in doorway...just outside party-house door...evening/porch-light...CU Char, with Extras coming past her

same set-up as (2)...CU Char as she says her name, then raps with Leroy...she turns to others coming in

5. interior/looking out to porch...in hall near front door or party-house...evening/porch-light and hall-light...MS Char in foreground with back to camera, Leroy and Friend and Extras in bkg, Doris entering shot near end

same set-up as (3)...MS Char taking money, seen from inside house, looking out, Char in MS in foreground, others (Leroy, Friend, couple paying) beyond her on porch...couple pay and brush by camera to enter party...Leroy continues rapping, Char looks back toward camera but to one side for a replacement as Leroy and Friend rap in bkg...Char yells into camera for Doris and she brushes past camera to take door-place beside Char and talks with Char...Friend splits as Char and Leroy brush past camera and into house

6. interior...party-house...need lights...MCU Char and Leroy (some zooming and reframing) and Extras

hopefully moving camera (handheld) circling around Char and Leroy dancing, framing and re-framing them in MCU & CU as they dance and rap...maybe camera on dolly...maybe stationary camera...should be one take for entire dance scene...as scene.ends and they return to door, let them walk out of frame and hold a minute on out-of-focus wall of dance-room/club

7. same set-up as (3) and (5)...CU Char's hands taking money

CU Char's hands taking money from incoming dancers, holding it , placing it in the money box...over this, her rapping with Leroy about going to the State Employment Office...same set-up as (3) and (5), with out-of-focus dancers brushing past camera momentarily

8. same set-up as (5)...CU Leroy

CU leroy, shlumping against wall, responding to Char's suggestion and imitating parents...same positioning as when brushed aside in (5)...

9. same set-up as (4)...CU Char

CU Char laughing, then turning serious as Leroy mentions not

LEROY AND CHARLENE

By

William Anderson

(A)

(Opening scene is the street of a large city. A ghetto street. The buildings are rows of houses. Time is about 9:00PM. Leroy and a friend are walking along the street. Leroy is early 20's, black.)

FRIEND
YOU SURE WE DON'T HAVE TO PAY?

LEROY
YEAH.

FRIEND
I AIN'T GOT BREAD TO PAY TO GET IN A SET.

LEROY
ME NEITHER. I AIN'T GOT BUT A DOLLAR.

FRIEND
WHERE IS THIS PLACE?

LEROY
1785

FRIEND
HEY, MAN, THESE CHICKS GOT A CLUB. WE DON'T HAVE A CLUB.

LEROY
WE GOT A CLUB.

FRIEND
WHERE WE GOT A CLUB?

LEROY
POOL HALL

(A-1)

(They reach 1785 and go up steps. Music coming faintly from inside the house while waiting for the door to open.)

FRIEND
YOU KNOW ANYBODY HERE?

LEROY
I DON'T KNOW STUPII. HOW DO I KNOW WHO IS HERE?

(The door opens, Charlene stands in the doorway. She is a very pretty chick. She is lighter than Leroy. She is dressed well, better and more sophisticated clothes than, comparatively, Leroy has. Her face should be back lighted at first and then her beauty should be revealed. Leroy stares at her, obviously interested.)

FRIEND
HEY, CAN WE COME IN?

CHARLENE
THIS IS A PRIVATE PARTY.

)Friend turns to Leroy, puzzled and awkward).

FRIEND
HEY, MAN, I THOUGHT YOU SAID WE COULD GET IN. I AIN'T GOT NO.....

(Leroy staring at Charlene and ignoring friend)

LEROY
HEY, I WANT TO TALK TO SOMEBODY IN THERE!

CHARLENE
YOU GOT TO PAY ME IF YOU WANT TO GO IN.

LEROY
I JUST WANT TO SEE MY MAN FOR FIVE MINUTES. I BE RIGHT BACK OUT.

(C and L are looking at each other, entranced. The attraction is obvious, but the nitty-gritty conversation continues.)

CHARLENE
UNH-UNH, YOU GOT TO PAY 50¢ IF YOU WANT TO GO IN. THIS IS A PRIVATE PARTY.

LEROY
WHAT'S YOUR NAME?

CHARLENE
CHARLENE.

LEROY
WHERE YOU STAY AT?

CHARLENE
OVER ON MAPLEWOOD.

LEROY
THAT'S COOL, I AIN'T SEEN YOU AROUND.

CHARLENE
WE JUST MOVED HERE, SEPTEMBER

(Two couples come up the steps and brush by. Charelene takes their money. Leroy is edged to the side, but he continues to talk.)

LEROY
IF I PAY, WILL YOU DANCE WITH ME?

(Couples go in).

CHARLENE
MAYBE, IF I CAN GET SOMEBODY TO WATCH THE DOOR.

(She turns and looks inside. Friend says to Leroy.)

FRIEND
HEY, MAN, I AIN'T GOT NO BREAD!

(Leroy shrugs. What does he care?)

CHARLENE (yelling inside)
DORIS! DORIS!

(Doris comes to the door)

HEY, DORIS. WATCH THE DOOR FOR A MINUTE.

DORIS
O.K.

CHARLENE
AND DON'T LET NOBODY IN WITHOUT PAYING!

DORIS
OH, CHARLENE, I KNOW HOW TO WATCH THE DOOR!

(Leroy gives money to Charlene,who gives it to Doris, who looks at them, surmising.)

FRIEND
I'M GOING FROM HERE. YOU BE AT THE POOL HALL LATER, LEROY?

# Narrator's Script for LEROY AND CHARLENE

LOOKING FOR A GIG IS A DRAG FOR ANYONE. EVEN A HONKEY LOOKING FOR WORK HAS GOT TO GO THROUGH SOME CHANGES TO IMPRESS THE MAN. THERE ARE CERTAIN THINGS YOU GOTTA DO.

CHECK WITH YOUR FRIENDS OR RELATIVES TO SEE IF ANY OF THEM KNOW WHERE YOU CAN GET A GIG. MAKE A LIST OF PLACES WHERE YOU THINK YOU CAN SCORE. AND THEN, MAN, GET OUT ON THE STREET AND HUSTLE. THE STORY WHICH FOLLOWS TELLS ABOUT A HIGH SCHOOL BROTHER AND SISTER WHO ARE TRYING TO GET JOBS AND START GOING TOGETHER.

THE FILM WILL SHOW YOU WAYS TO HUSTLE A GIG, HOW TO FILL OUT A JOB APPLICATION, LIKE HOW TO HANDLE THE MAN'S INTERVIEW, AND FINALLY, WHEN YOU GET A JOB, HOW TO KEEP IT AND MAKE SOME BREAD.

# APPENDIX E

Sampling Of Course Outline

APPENDIX C

COURSE OUTLINE

I.A. What is film?

1. It is composed of a film base made from cellulose acetate.
2. Coated with a light sensitive coating or emulsion made from silver nitrate and potassium bromide suspended in gelatine.

I.B. What happens when light strikes film?

1. The silver particles are exposed and an invisible (latent) image or picture is formed in the emulsion.
2. When the exposed film is developed, the exposed grains are changed into metallic silver, but the grains that were not exposed remain unchanged.
3. The film is then fixed in a solution that dissolves away the grains that were not exposed.
4. This leaves only the exposed black silver grains in the gelatine forming a reverse (or negative) image which is exactly the opposite of what was originally photographed. The black areas are now white (or clear) and the white areas are now black.
5. A print (or the opposite of the negative) is made from this and we now see everything as it was: whites are white, grays are gray, and blacks are black.

II.A. The Camera

1. The idea for the camera came from ancient Greek times when Aristotle noticed that light came through a tiny hole in the walls of a darkened room cast on the opposite wall a perfect upside down image of the scene outside

2. The simplest camera was based on this discovery. A box painted flat black on the inside with a tiny hole in front and a piece of frosted glass or plastic on the back.

3. A simple box camera consists of a box, a lens, a shutter and a means of holding some film.

4. A movie camera is basically the same as the box camera with the addition of a claw mechanism to pull down each frame of picture as it is photographed.

5. How do movies move?

   When the shutter is open a picture is photographed. Then the shutter closes and the claw pulls the next frame of film down to be exposed as the shutter opens again. This is repeated for every frame of a movie. The eye is unable to separate each picture individually and sees them one after another, each one slightly different from the last. This gives the illusion of movement.

*At this point have students make very simple flip charts.

6. The many types of motion picture cameras are all basically the same. The more complex ones only give a better, more steady picture and insure that the picture will be consistently excellent.

III.A. The Lens

The lens is simply an instrument that focuses the light on the film. There are many different types of lenses, but they can be deivded into three main groups: the Wide Angle, The Normal, and the Narrow Angle.

1. Wide Angle Lens (15mm)

   It is used when a wide area is to be photographed or when one can't get far enough away from a subject to show it all.

2. Normal Angle Lens (25mm)

   This is used when one wants to show what a person's eye usually sees and focuses on.

3. Narrow Angle Lens (Telephoto: 30 mm on up)

   These lenses are used when one wants to bring a distant object up closer or to show a close-up shot of a person or object without coming up close to it.

4. On Lens Markings

   Most motion picture lenses have two sets of numbers on rings. One set is the focus or distance of the subject from the film. The second set of numbers is the aperture or opening light-admitting power of the lens. This is called the f stop. The lower the f stop, the more light the lens will admit, while the

APPENDIX F

Evaluation Of "Role Play Book"

EVALUATION
of
"ROLE PLAY BOOK"
a section of
"HOW TO GET A JOB"

Addison - Wesley Publishing Company
Palo Alto, California

## Student Selections

Three students, all 11th graders, were chosen as evaluators. They were given several hours of orientation in order to familiarize them with material in the "Role Play Book." Those chosen had the following characteristics:

| | IQ | Reading | Arithmetic | |
|---|---|---|---|---|
| Student A (Girl) | 117 | 16 | 16 | (Divide reading and arithmetic scores by 2 to obtain approximate grade level of test result) |
| Student B (Boy) | 96 | 16 | 13 | |
| Student C (Girl) | 84 | 16 | 12 | |

Three additional students were randomly chosen as interviewers. They were not given formal orientation but were asked several routine questions in order to check their knowledge of the duties of the job for which they were to apply. Personal characteristics of these students were:

| | Grade | IQ | Reading | Arithmetic |
|---|---|---|---|---|
| Student D (Boy) | 10 | 93 | 16 | 14 |
| Student E (Girl) | 10 | 96 | 12 | 12 |
| Student F (Girl) | 12 | 79 | 12 | 13 |

## Evaluator Orientation

Orientation sessions were held for several hours with each student alternately serving as interviewer, interviewee and evaluator. These were continued until all of them

demonstrated a working familiarity with the material in the "Role Play Book" and were relaxed in their executions. In addition, each student had his performance critiqued by the leader and other participants.

Interviews

Interviews were held under conditions approximating reality as nearly as possible and were taped. Each interviewee was told that his responses were being evaluated and that he would be expected to participate in a discussion in which his reactions were to be rated.

In the first group of interviews, student evaluators alternated as interviewers, asking questions as written in the book. The same person was used as the interviewee in all cases (Side I, Section 1 of Tape).

In the second and third groups of interviews, student evaluators again alternated as interviewers using material as written in the book but injecting questions of their own in an attempt to draw out the interviewee. A different person was used in each series of interviews (Side I, Section 3 of Tape).

Panel Discussions

Two panel discussions, one after the first series of interviews and the other following the third, were recorded (Side I, Section 2 and Side II of Tape). Both of these were unstructured. That is, participants were asked to give their reactions to the material in book and to assess each other's

performance without the benefit of specific guidelines. Some of the exchanges were rather spirited, providing a wealth of substantive data for revisions.

Assessment

In general material was well-planned and easy to administer. Whenever difficulty arose, it usually concerned the interpretation of a statement or question asked by the interviewer. Therefore it is recommended that the following items on the interviewer's card be revised:

Role Play 2A

Question 2. "What skills do you have that would help you with the job?

Comment: We obtained better responses by rephrasing question to read, "What training do you have that would help you do a (name of position) job?

Question 4. "What were your grades like?"

Comment: Invariably we got the response, "average" or letter grade. (A,B,C, etc.)
Might be rephrases as, "What were your marks in school?"

Question 5. "What makes you want to work for us?"

Comment: This was an extremely difficult question for the interviewees to answer. Difficulty might have stemmed from pupils lack of

knowledge in this area. Better question might be, "How did you happen to apply to us?" or "How did you happen to come here for a job?"

Role Play 2B

Question 1. "Arent you the applicant for the job as bookkeeper?"

Comment: This question may or may not have relevance to what follows. It should be rephrased as, "Aren't you the applicant for the job as (name of job sought)?

Question 3. "How are your work habits?"

Comment: Should be rephrased as, "Tell me about your work habits."

Question 5. "Do you have any previous experience?"

Comment: If "yes", tell me more about it.

Role Play 3A

Question 3. "Did you have any trouble getting here today?"

Question 5. "Do you have any relatives working for the Williamson Manufacturing Incorporated?"

Comment: Make some provisions for "yes" or "no" answers.

Role Play 3B

Question 1. "Did you know there's a lot of competition for this job?"

Comment: Suggest follow-up question for interviewer in response to "yes" or "no" answer.

Statement 3. (Is the interviewee expected to reply?)

Comment: Reword to read, "What would you say if I told you that the last person who had this job was fired because he was too slow?"

Question 4. "If I asked you to come in Saturdays, would you do it?"

Comment: Question should be rephrased. May be restated as, "What would you do if I asked you to come in Saturdays?"

Question 5. "Well, I guess we have all the information we need on you, don't we?"

Comment: Suggest deletion of "Don't we?" or rephrasing to read, "Is there anything else we should know about you?"

Role Play 4

Question 1. "Do you have the educational requirements for this job?"

Comment: Question is too vague. Should be reworded to elicit a positive response.

Question 3. "Do you think you'd be happy here?"

Comment: Interviewee has little or no information to make decent response to this question. Anyone seeking the job wouldn't dare say "no."

Role Play 5

Question 3. "Would you be willing to start as a trainee and help a more experienced worker?"

Comment: This question was especially confusing for many youngsters. Could be rephrased as, "Would you be willing to be trained on the job by a more experienced worker?"

Role Play 6A

Question 1. "I see from your application form that you're very well qualified, but would you tell me now which of your skills you think are most important for the job?"

Comment: Needs to be rephrased. Word "skills" was often misinterpreted.

Question 3. "I'm willing to take a chance on you. You should work out quite well. Could you start a week from Monday?"

Comment: Only the more aggressive person might try to advance starting date. An interesting exchange occurred when this actually happened in our tryouts.

Role Play 6B

Question 3. "What skills and abilities do you have?"

Comment: Needs to be reworded - word "skills" is confusing.

APPENDIX G

Pre- and Post-Tests For General Math
And Measuring Skills Units

# Measurement Skills Pre-Test

## Form C-71867

Simon Gratz Tutorial Center

Brooks Foundation East

N. 17th and Luzerne Streets

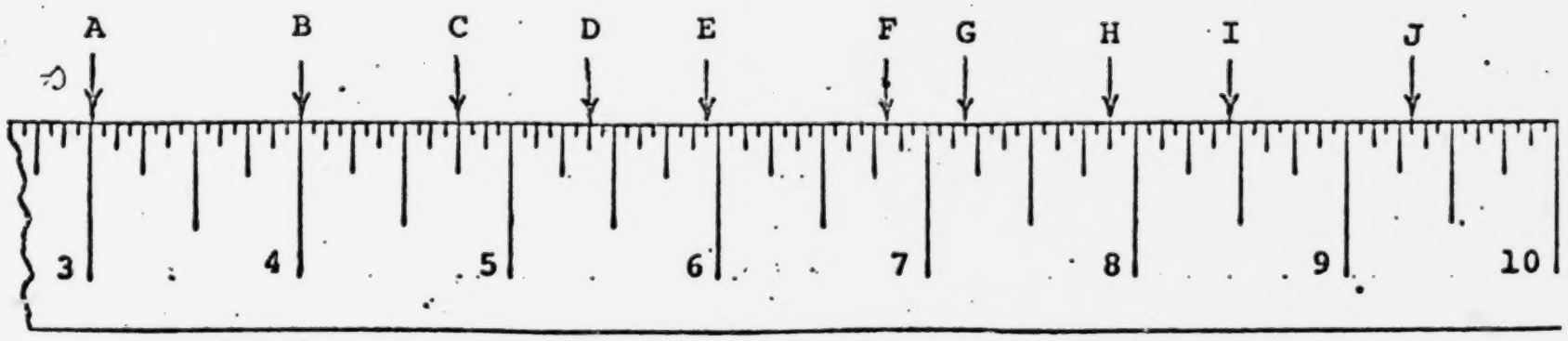
Philadelphia, Pennsylvania 19140

Preliminary Form-- Not For Publication

Evaluator's Name _____

Date _____

PART 1




Directions:

The letters above the arrows show markings on a ruler. Each arrow shows a different marking. Read each marking and place the measure next to the letters below. Do not use a ruler, just use this picture.

(1) A is read _____ inches.

(2) B is read _____ inches.

(3) C is read _____ inches.

(4) D is read _____ inches.

(5) E is read _____ inches.

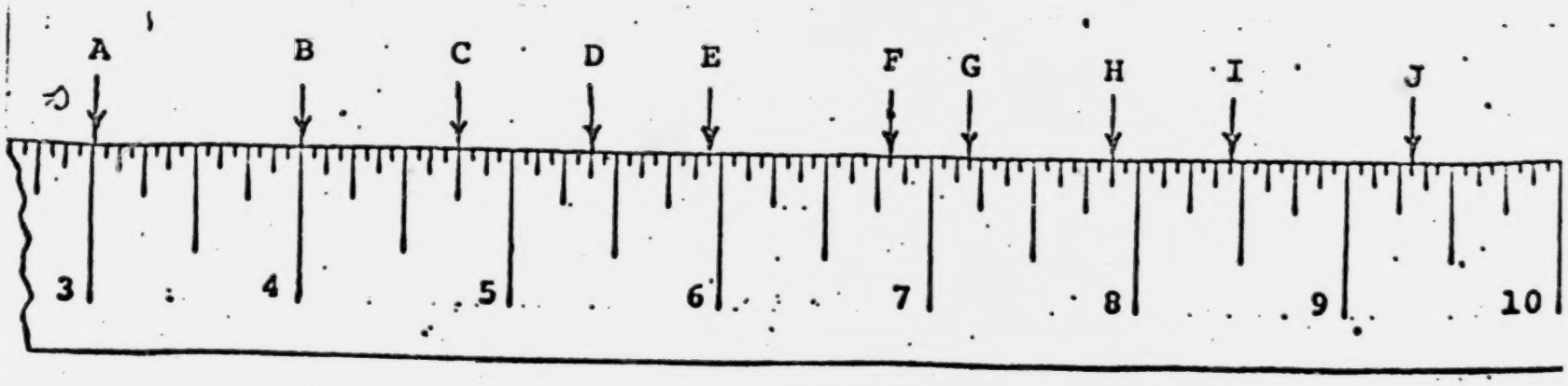
(6) F is read _____ inches.

(7) G is read _____ inches.

(8) H is read _____ inches.

(9) I is read _____ inches.

(10) J is read _____ inches.




(11) The distance between points A and B is _____ inch (es).

(12) The distance from C to E is _____ inch (es).

(13) From D to G is _____ inch (es).

(14) H to J is _____ inch (es).

(15) B to D plus D to H is _____ inch (es).

(16) How many sixteenths of an inch are there from point C to point G? Answer _____.

(17) How many half inches are in:

(a) 1 Answer _____

(b) 2 1/2" Answer _____

(c) 4" Answer _____

(d) 5 1/2" Answer _____

(18) How many quarters of an inch are in:

(a) 1/2" Answer _____

(b) 1 3/4" Answer _____

(c) 2 1/4" Answer _____

(d) 3 1/2" Answer _____

(19) How many eighths of an inch are in:

(a) 1/4" Answer _____

(b) 1 1/4" Answer _____

(c) 2 1/8" Answer _____

(d) 3" Answer _____

(20) How many sixteenths of an inch are in:

(a) 1/8" Answer _____

(b) 1 1/4" Answer _____

(c) 2 5/8" Answer _____

(d) 3 1/2" Answer _____

(21) How many tenths of an inch are in:

(a) 2" Answer _____

(b) 1 1/2" Answer _____

(c) 1.4" Answer _____

(d) 3.7" Answer _____

## Part II

Section A

Measure the lines below and write your answer in the space provided.

(All measurements in this section are to be made with th 12" ruler (1/16" scale).

(1)

Answer _____

(2)

Answer _____

(3)

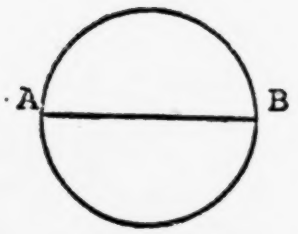
Answer _____

(4)

Answer _____

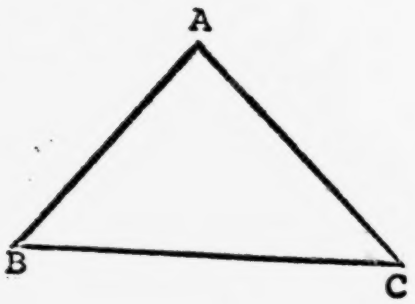
Measure the lines asked for in the figures below and write the answers in inches and fractions thereof in the space provided.

(5)




Line AB = _____.

(6)

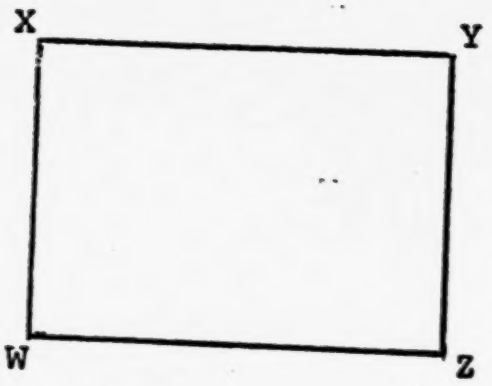



a) side AB = _____.

b) side AC = _____.

c) side BC = _____.

(7)




a) side XW = _____.

b) side XY = _____.

c) side YZ = _____.

d) side WZ = _____.

Measure the lines below as indicated and write your answers in the space provided.

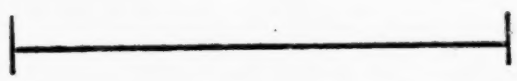
(8)

(to the nearest 1/2") Answer_____

(9)

(to the nearest 1/4" Answer_____

(10)



(to the nearest 1/8") Answer_____

(11)

(to the nearest 1/16") Answer_____

In the space to the right of each of the problems below, draw straight lines using the given measurements.

(12) A line 2 1/2" long

(13) A line 2 3/8" long

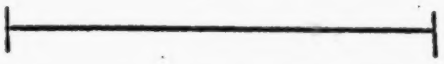
(14) A line 1 3/4" long

(15) A line 1 7/16" long

Measure the lines below and write your answer in the space provided.

All measurements in this section are to be made with 12" ruler (1/10" scale).

(16)



Answer_____

(17)

Answer_____

(18)

Answer_____

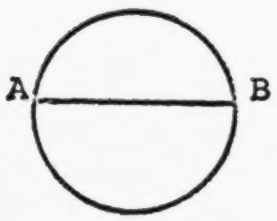
(19)

Answer_____

Section B

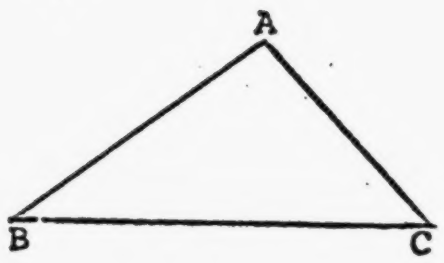
The sides of the following are to be measured with a 12" ruler (1/10" scale). Measure each side and write answers in the space provided.

(20)




Line AB = _____.

(21)

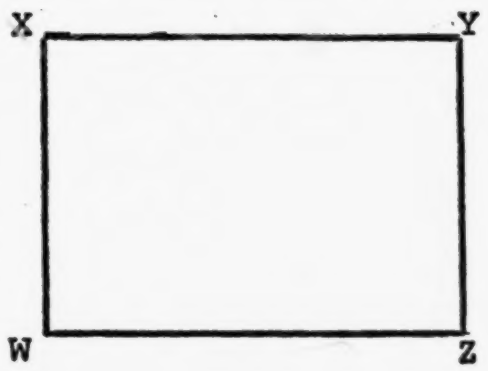



a) side AB = _____.

b) side AC = _____.

c) side BC = _____.

(22)




a) side XW = _____.

b) side XY = _____.

c) side YZ = _____.

d) side WZ = _____.

Measure the lines below as indicated and write your answers in the space provided.

(23)

 (to the nearest 1/10") Answer_____

(24)

 (to the nearest 1/10") Answer_____

(25)

(to the nearest 1/10") Answer_____

(26)

(to the nearest 1/10") Answer_____

Draw straight lines using the given measurements.

(27)

A line .9" long

(28)

A line 1.7" long

(29)

A line 2.3" long

(30)

A line 3.6" long

One inch contains how many of each of the following parts

Write answers in space to the right.

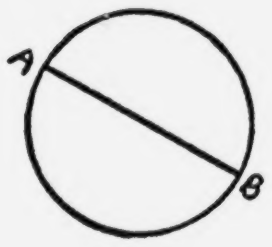
(31) 1" = _____ half inches (1/2")

(32) 1" = _____ quarters inches (1/4")

(33) 1" = _____ eighth incnes (1/8")

(34) 1" = _____ sixteenth inches (1/16")

(35)




Line AB is called the

_____ of the circle.

(36) The distance around the outside of the circle is called

the _____ of the circle.

(37)

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | X | X | X |
| 2 | | X | X | |
| 3 | X | X | | X |
| 4 | | X | X | X |

Underline the correct answer:

The four X's are in:

(a) Row B

(b) Column B

The two X's are in:

(a) Row 2

(b) Column 2

(38) Take the outside calipers and measure the width of objects A and B.

(a) object A _____ inch(es)
(answer)

(b) object B _____ inch(es)
(answer)

(39) Use the inside calipers and measure the width of objects C and D.

(a) object C _____ inch(es)
(answer)

(b) object D _____ inch(es)
(answer)

(40) Reduce the following to lowest terms:

(1) 12/16 = _____

(2) 2/8 = _____

(3) 4/8 = _____

(4) 6/16 = _____

(41) Using the ruler, round off the following measurements to to the nearest 1/4 inch.

(1) 5/8" = _____

(2) 11/16" = _____

(3) 4 3/8" = _____

(4) 3 5/16" = _____

(42) Using the ruler, round off the following measurements to the nearest <u>higher</u> 1/8 inch.

(1) 3/16" = _____

(2) 2 5/16" = _____

(3) 1 11/16" = _____

(4) 5 1/16" = _____

(43) Using the ruler, round off the following measurements to the nearest <u>lower</u> 1/8".

(1) 3/16" = _____

(2) 2 5/16" = _____

(3) 1 11/16" = _____

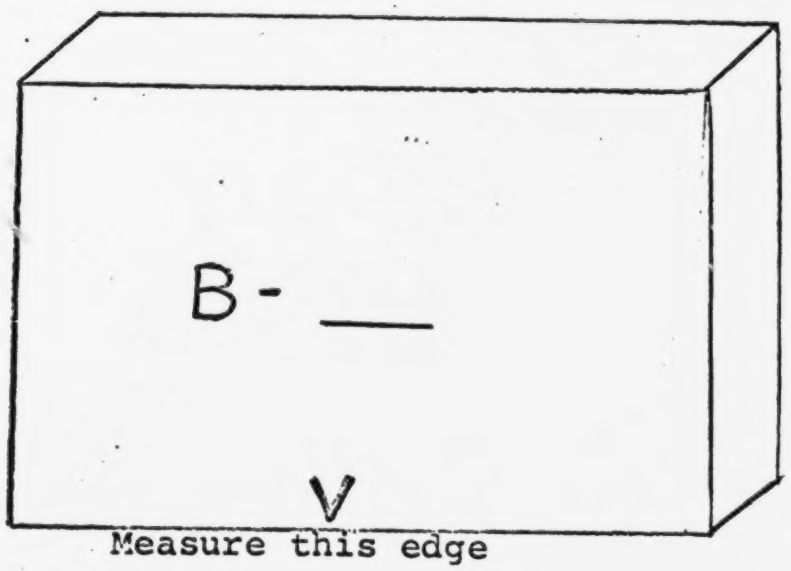
(4) 5 1/16" = _____

(44) Take the "B" block and measure with your ruler the red, white and blue edges with the V on it as in drawing below. Your "B" block has the number _____ (answer) on it. (Fill in the number).

(1) The Red side is _____" wide.

(2) The White side is _____" wide.

(3) The Blue side is _____" wide.



Measure this edge

Final Exam - General Math

1. Use the signs of inequality ( > or < ) to show the relationship between the numbers indicated in each pair.

   (1) 20, 2

   (2) 3, 6

2. Illustrate each of the following on a separate number line. (Draw 4 number lines, each going up to number 10.)

   (1) 3+ 6 (3) 3 x 2

   (2) 6 - 2 (4) 8÷ 2

3. Indicate whether each of the following is true or false.

   Answers:

   (1) 0 x 5 = 5 _____

   (2) 0 + 5 = 0 _____

   (3) 1 x 5 = 5 _____

   (4) 6 x (2 + 4) = (6x2) + (6x4) _____

   (5) 5 - 3 = 3 - 5 _____

4. What is the answer in the following problems?

   (1) 3x0 = _____

   (2) 0 + 3 = _____

   (3) 5 x 4 x 2 = _____

   (4) 5x (4+2) = _____

   (5) 12 4 = _____

   (6) 1 x 12 = _____

   (7) 15 ÷ (3 + 2) = _____

5. Replace the question marks with numbers so that the statements become true ( that is, find a number that will make the two fractions equal.)

   (1) $\frac{3}{7} = \frac{?}{42}$ Answers:

   _____

Final Exam , continued - General Math

(2) $\frac{18}{54} = \frac{?}{9}$ Answers: _____

(3) $\frac{6}{1} = \frac{?}{5}$ _____

(4) $\frac{?}{6} = \frac{12}{36}$ _____

6. Reduce the following fractions to lowest terms:

(1) $\frac{3}{24}$

(2) $\frac{4}{28}$

(3) $\frac{12}{18}$

7. Add the following fractions and reduce answers to lowest terms:

(1) $\frac{3}{9} + \frac{6}{9}$

(2) $\frac{5}{6} + \frac{2}{3}$

(3) $\frac{7}{8} + \frac{3}{4}$

(4) $\frac{1}{2} + \frac{3}{12}$

8. Subtract the following fractions and reduce answers to lowest terms:

(1) $\frac{2}{3} - \frac{1}{3}$

(2) $\frac{7}{8} - \frac{3}{4}$

(3) $3 - \frac{1}{3}$

9. Multiply the following fractions and reduce answers to lowers terms:

(1) $\frac{1}{2} \times \frac{5}{7}$

Final Exam , continued - General Math

(2) $\frac{2}{3} \times \frac{3}{8}$

(3) $\frac{2}{5} \times \frac{10}{13}$

10. Divide the following fractions and reduce the answers to lowest terms:

(1) $\frac{3}{8} \quad \frac{7}{8}$

(2) $\frac{1}{6} \quad \frac{2}{3}$

(3) $\frac{3}{16} \quad \frac{3}{8}$

11. Change the following mixed numbers to improper fractions:

(1) $4\frac{2}{3}$

(2) $6\frac{2}{5}$

12. Change the following improper fractions to mixed numbers:

(1) $\frac{15}{6}$

(2) $\frac{37}{4}$

13. Solve the following problems as indicated:

(1) $2\frac{1}{5} + 3\frac{3}{10}$

(2) $\frac{1}{6} + 5\frac{2}{3}$

(3) $3\frac{5}{12} - 2\frac{1}{6}$

(4) $5 - \frac{7}{8}$

(5) $4\frac{2}{3} \times 2\frac{5}{7}$

Final Exam, continued - General Math

(6) $5\frac{1}{5} \times \frac{25}{28}$

(7), $4\frac{3}{4} \times 12$

(8) $2\frac{5}{6} \div 34$

(9) $4\frac{1}{6} \div 2\frac{2}{3}$

14. Complete the following statements to express equivalent units of measurement.

(1) $\frac{2}{3}$ yd. = _____ in.

(2) 4 quarts = _____ pints

(3) 20 quarts = _____gallons

(4) 4 ounces = _____lb.

# APPENDIX H

Sampling Of Slang Dictionary

| WORD | DEFINITION |
| --- | --- |
| coon | Negro |
| cop | To purchase drugs; to steal; to obtain; policeman |
| cop out | To avoid conflict by running away |
| corner | Gang, fighting group |
| corny | Silly, out of style, not appealing to the group |
| cow knife | Lesbian |
| cracker | White person |
| crap | Nonsense |
| crash | To break in; to go uninvited |
| crib | House, apartment, residence; plagiarize; steal |
| cut buddy | Best friend |
| cut a rug | Dance well, dance vigorously |
| cut out | To leave, go away |
| daddyo | Person, a person in the group |
| dagger | Lesbian |
| dame | Girl |
| dapt | Stylish |
| Dear John | A letter from a girl to a boy to tell him she is no longer interested in him |
| deep | Very involved |
| dick | Police |

| WORD | DEFINITION |
| --- | --- |
| diddy bop | Gang member; popular music lover |
| dig | Understand, pay attention, listen; to meet; to like |
| dike | Lesbian |
| dime dropper | Tattle tale |
| dip | Dance, sway |
| dodge boy | The good guy in a film |
| dog bed | Coat |
| dome | Head |
| dough | Money |
| down | Nice, agreeable, favorable; beat up |
| drag | Boring |
| dud | Phoney, someone who doesn't fit into the group |
| duff | To avoid by running away |
| dust | Money |
| eating up your grave | Wasting your time |
| fade | To go |
| fag, faggot | A person who is not accepted by the group; homosexual |
| fair one | A fair or clean fight, a gang fight, a person who fights fairly |
| far out | Out-landish, crazy |
| fat boy | A large man |
| fat mouth | Braggart |

| WORD | DEFINITION |
| --- | --- |
| five hundred | Someone who shows off |
| five spot | $5 |
| flick | Motion picture |
| four corner man | State Trooper |
| fox | Girl, good looking girl |
| foxy Momma | Woman |
| freak | Homosexual |
| free fall | A fight in which every man looks out for himself - usually hand to hand; a dirty fight |
| funk | Smell of a person |
| funny | Lesbian, homosexual |
| fuzz | The police |
| fuzz pocket | A policeman who has already arrested someone |
| gang | Fighting group |
| gassing | Chattering, talking |
| George Washington | Dollar bill |
| gestaps | The police |
| get it | To understand |
| gig | Job; party, social gathering |
| go | Indication of enthusiastic support |
| go blasé | Get drunk |
| go conservative | Stop fighting |
| go down | Look for a fight, to look for someone |

# APPENDIX I

Proctor's Report / Summer Tutorial

Proctor's Report

Summer Tutorial

Virginia Cannady

Wednesday, July 19, 1967

Orientation and part I of the Pre-Test were the order of the day. I attempted to explain the proctoring sessions by using the space program as an analogy. I said those in the tutoring sessions were like the astronauts on the first team and ours was the back up team. The members of our team had to be prepared to fill in, should members of the first team drop out. I said we were all working together in trying to develop material that would be useful in school to students like themselves. They all seem pleased by the idea of being part of a team with such an important role.

The Pre-Test, Part I went along rather well. There was a look of bewilderment on the faces of a few of the students. Some just sat quietly and followed the instructions but where questions were asked by more agressive students, all paid attention.

Thursday, July 20, 1967

Part II of the Pre-Test was given today. I venture to say that none of the students had ever seen a pair of calipers before. Most were very curious about them which created some frustration for me as I was told not to instruct them in any way.

Friday, July 21, 1967

Since the jobs done by the students in the proctored group had to be given first to the students in the tutored group and then revised, it left the proctored group with a free day. Bill suggested that I teach them to use the tape recorder using the instructions from the writing and speech units. This was a delightful experience for me because the students responded with so much enthusiasm.

Monday, July 24, 1967

Job #1 which most students completed went fairly well. Most of the questions asked were caused by the failure to read the instructions carefully. When asked to reread the instructions all complied but some found it hard to understand why I could not be more helpful. A few students were confused by questions 13 and 14. They wanted to know if they should be answered by darkening the blocks, "across or up and down." One boy said we should have six one inch blue blocks because we could measure stick A that way also.

Tuesday, July 25, 1967

Most students finished job #2 very quickly and no questions were asked.

Wednesday, July 26, 1967

Some students seem intrigued by the silver 1/16 inch blocks. They count them very carefully, hold them up beside the one inch block then put them back into the slot. They then read the directions on the job sheet and meticulously follow the instructions.

Thursday, July 27, 1967

Job #3 was done with dispatch and seemingly enjoyed by all. One girl said she had a game at home with pegs and a board and job #3 reminded her of it. It took the slowest student just twenty minutes to complete the job. The attitude of the students while during the job is interesting. There is a sort of "cockiness," a feeling of, "this is easy, nothing to it."

Friday, July 28, 1967

Job #4 was also done very quickly with the students completely absorbed while doing it. The instructions apparently were quite clear as there were no questions about them. Jobs #3 and 4 could easily have been combined. The slowest student did not take more than twenty to twenty-five minutes for either job.

Monday, July 31, 1967

Job #5 has caused the greatest amount of confusion. Over and over, the students said, "Mrs. Cannady, I just don't understand this." A careful reading showed several mistakes in wording.

July 31, 1967 (continued)

The examples on page 39 are not clear and a number of students just gave up. I think there are too many examples on the page and in spite of all the wordage, the instructions are not clearly stated.

Job #6 put us "back into stride." Several students remarked that it was, "much better than #5." Upon looking over the sheets after the students had completed them I found some mistakes, but most students seemed to have done the job correctly.

Tuesday, August 1, 1967

Job #7 was done very quickly by most students. Seemingly it was understood by all as there were no questions and no hesitation as they went along. It occurs to me that if the chart on page 39 in job #5 were reduced in size and the number of problems corresponded to the chart on page 53 in job #7 there might be less confusion. I feel that the difficulty the students faced in job #5 was caused by the sudden confrontation of this mass of problems and wordage after going through four jobs of instructions simply and clearly stated.

Wednesday, August 2, 1967

Job #8 went fairly well. However, one thing seems crystal clear. In the self instructional units especially, the instructions must be simple, direct and clear with a minimum amount of

August 2, 1967 (continued)

wordage. The entire unit has been improved by the removal of most of the folksy verbiage that really left the students cold and in my opinion, got in the way of the instructions. In job #8 I was reminded of the difficulty of really getting the students to read the instructions even with the cropping of some of the wordage. On page 56 for example, they were told to change the figures in the left column into eighths. A number of students gave the answer in fourths - some went as far as to give the answer that was suggested as an additional answer. When asked to reread the instructions I found that only one student did not know how to give the answers in eighths - the others saw the word eighths for the first time when they reread the instructions!

Thursday, August 3, 1967

Job #9 was hard for a number of students to understand. It was the first job in which they were working without the measuring board and I have a feeling that those who were having trouble still do not have a clear concept of the number of eighths in 1/2 or number of sixteenths in an inch.

Friday, August 4, 1967

Job #10 was understood by most students. One girl confided that the whole job was the best thing that had happened to her in a long time. She said that in all the years she had been going to school she had never known what the little lines between 1 and 2 inches etc., meant.

Monday, August 7, 1967

Job #11 was met with complete approval. The students seem to like the idea of moving around and measuring objects. However, once again the difficulty of communication was shown. On page 88 the students were instructed to measure from the top of the window sill. Most of the students measured from the top of the window frame. I am not quite sure whether it was a question of not knowing what the window sill was or whether the student tuned out once he read the word "top." I think the names of the parts of the window should be put on the drawing which is shown on the facing page.

Tuesday, August 8, 1967

The students seemed to find job #12, which introduces the uses of the outside calipers, most interesting. Once again it seemed to be a question of a feeling of involvement. The student had to get up from his seat, walk over to measure the door knob, the chair or whatever is called for in the instructions. This seems to appeal more to these youngsters than just reading a problem and trying to solve it abstractly. Few of them like to read. I base this opinion on the way they skim over the material, often missing a word and sometimes a whole sentence. In contrast, when they are told to measure an object like a table or a door, they apply themselves with alacrity, their interest never lagging until the job is completed. I really think it is a matter of relevance - measuring something useful has more meaning.

Wednesday, August 9, 1967

Job #13 teaches the use of the inside calipers. As in the previous job in which the students are taught to use the outside calipers, the interest is extremely high. A large part of this interest can be attributed to the fact that the idea of a tool like the calipers is brand new to most of the students. As one student said, "I never thought about how they measured things like this before." Once again, the act of performing, of really having a job they felt they could successfully complete, impressed me as a remarkable interest stimulant.

Thursday, August 10, 1967

Job #14 introduces the special measuring blocks and left all but a few students in a state of confusion. Some very determined students, by reading the instructions over and over, were able to grasp the meaning. It was pleasant to watch the reaction when they finally understood and were able to complete the job. They were told that they were required to answer only four questions (noted by arrows) on the answer sheet but those who understood the job completed the entire page of answers.

Friday, August 11, 1967

Job #15 was almost a fiasco. There were moans and groans of dispair from all the students. I asked them to read the instructions very carefully and pointed to the example of stick K that had been worked out for them. I suggested that they go over it again step by step and if they could not do it, write on the page, "This is not clear," or "I don't understand." One girl had

August 11, 1967 (continued)

written, "I don't understand" on her paper and was about to give up when suddenly she turned to me and said, "Mrs. Cannady, may I stay and try to work it out?" Of course, I agreed. It took her nearly an hour but she successfully completed the job and crossed out "I don't understand." When she turned in her papers I could not resist complimenting her and telling her that I hoped she would carry that spirit of determination to Gratz High School in the fall.

# APPENDIX J

"Christian Science Monitor" Article on
the Twelfth and Oxford Street Gang
November 14, 1968

# Gang's film spotlights ghetto plight

By George H. Favre
*Staff correspondent of*
*The Christian Science Monitor*

**Philadelphia**

It was 1 o'clock on a Saturday afternoon at the corner of Columbia and 11th Streets, and the four-foot black iron gates to Wanamaker Junior High School were locked tight.

The lads from the 12th Street and Oxford gang — now incorporated under the state laws of Pennsylvania as the 12th and Oxford Film Makers Corporation—were supposed to have met us. No one was in sight, except a nonchalant Negro, waiting for a bus on the corner.

We were conspicuous enough so they could not have missed us—a white reporter and a white photographer, sitting in a bright red sedan, parked there in the middle of a black North Philadelphia ghetto.

It looked as though we had been taken for a ride—a long one, all the way down from New York. Our mission: to photograph the group in action, filming their newest documentary, "Why I Dropped Out of School."

## 'You wait—they'll come'

A pair of teen-age boys approached. I lowered the window. "D'you know 'Country' Robinson?" I asked.

The shorter, heavier-built lad studied us, suspicion written across his young face. I explained our mission. The boy, called Dutch, nodded, relaxing. "We was s'posed to come down for the filming," he said. "You wait 'round. They'll come on down."

The pair perched themselves on the car trunk, silent. A half hour later I suggested that maybe we should go look for Country, in case he had forgotten.

Dutch clambered into the back of our car, and directed us to Country's home in a well-tended garden apartment complex. It was clear that this neighborhood had undergone urban renewal in recent years. Up the street, a couple of blocks away, were acres of empty, gutted buildings, awaiting the bulldozer and wrecker's ball. Across the railroad tracks that ran by the school and garden apatments was a teeming, ancient, red-brick tenement slum, indicating what had been here only a short while ago.

## Ball game postpones filming

We found Country letting a bunch of black youths out of his white Mustang. Tall, loose-limbed, and mustached, he looks older than his 21 years.

Perhaps the 23 months he spent in jail for robbery did that to him.

Dutch explained our presence, and Country cursed softly. "Sorry about that," he apologized, shaking hands. "We had a ball game, and I done forgot about the filming. Sun wasn't too good, nohow."

Country listened thoughtfully while we explained our predicament. "I guess we can rig up something for you," he said. Turning to Dutch, he tilted his head toward the tracks and said, "Go get as many of the cats as you can and have them over to Wanamaker by three o'clock."

We drove Dutch to the local bar, a street corner, a housing project. Young, streetwise, black faces came up to the car windo wat Dutch's call, listened, nodded, disappeared.

## Grant pays cost

Gang or business enterprise, the 12th and Oxford group is organized and ready for action on call. Country is boss and what Country says is okay all the way.

By three o'clock they were on hand, loaded down with a shiny aluminum box full of expensive movemaking equipment. An orange-hatted lad called Peacock carried the zoom-lensed Bolex 16mm. camera with easy confidence. Trailing him was another youngster with a leather-covered set of batteries, attached by wire to the camera.

The boys went through a series of scenes for the benefit of the photographer. I chatted with Country and with Dave (Bat) Williams, president of the film corporation.

The film they were currently producing, "Dropout," was their second. Their first, "Jungle," had been made for $7,000 under a grant from the Brooks Foundation of Santa Barbara, Calif., one of four pilot propects. Its purpose, to give high-school dropouts a renewed interest in learning.

"Jungle" is a 20-minute documentary of savagery in the urban mode. It tells a terse tale of gang warfare against the backdrop of decrepit housing, trash, empty lots. The tale ends in murder.

## Film promotes communication

That first film, made in 1968 with the guidance of Phil Galligan, a white ex-marine television cameraman on leave from Columbia Broadcasting System, won plaudits. More than that, it won self-respect for Bat, Country, and the gang. It proved to them what they needed to have proved—that they could accomplish something, for themselves and for their neighborhood. And that people would sit up and take notice.

The group rents out the film at $75 a showing in Philadelphia, more elsewhere to cover travel costs. Costs include paying for at least two members of the corporation to come along and answer questions after the film is screened.

Country explained why he insists that members accompany the film. "We try to make some kind of communication," he says.

What about the questions that come from the generally white, middle-class groups who see the film? "We live in different worlds," says Country. "They don't understand. But the film helps us communicate. Some of them don't believe it happens that way."

## Dropouts explained

The current film, "Dropout," is slated to be as candid and unbelievable to white suburbanites as the first. It takes place in Wanamaker Junior High. A handsome, modern school that would look well in any middle-class white suburb, it is hardly a "typical" ghetto school backdrop. But the film will invest it with all the symptoms that these youngsters—many of them dropouts themselves—feel force children of the ghetto to leave school for the streets.

What kind of things does it plan to show? I asked.

"We'll show how 'paycheck teachers,' who only work for their money, cheat the kids," said Bat Williams. "We'll show how some of the teachers are gay [homosexual]. How some of 'em don't teach but just make kids copy from the page. How some of them are afraid of the kids, and how some of them think they're too good to be teaching black kids."

## Business rules studied

Who will play the role of teachers in this film? I asked.

"The teachers here at Wanamaker," said Bat. "They're all cooperating."

Having savored success, and liking the taste of it, the 12th and Oxford group has set its sights on new horizons.

"Some of the dropouts are going back to school," said Country. "We're setting up a laundromat and a real-estate business. Soon we hope to open up a restaurant around here. To do that, we've gotta learn how to run a business. So we've got businessmen who come out here nights and give courses in how to run a business—you know, bookkeeping and arithmetic and things like that."

How does the 12th and Oxford community look at all of this?

"Well, they're real happy," said Country. "We don't have no gang fights no more. Oh, sometimes things . . . you know, a guy gets drunk and pulls a knife or something . . . but no more gang fights. Not our group. If one guy messes up, he knows he messes up the whole organization. So he watches out, you know?"

## 'No more fighting for us'

Country and Bat are adamant about gang wars. "No more fighting for us," says Bat. Nor, if they can prevent it, for other gangs in the area. Currently they are helping two other former rival gangs to set up similar ventures as an alternative to the endless, deadly, and futile gang wars.

The 12th and Oxford corporation is getting $170,000 from the Office of Economic Opportunity to set up its business ventures. The local board of education acts as their sponsors and supervises how the money is spent. Country talks about thousands of dollars with the aplomb of one who has handled business affairs for years. "Price and Waterhouse audit our accounts," he told me.

When not working with the 12th and Oxford corporation, he is employed with the Philadelphia Gas Works, but Bat puts in full time with the gang. He is on salary, and the actors in the films are paid by the hour for their work.

Has success given them a desire to move out and do bigger things elsewhere? For the gang, their "turf" is still 12th and Oxford Street. "We're going to stay here," says Bat. "That's the trouble right now. People rise up and leave their neighborhoods."

# APPENDIX K

Sampling of Attitude Questionnaire

Alma Mowin

P- 3

## Daily Evaluation Sheet

JOB NO. 10

Complete the following sentences by checking the box that best describes today's job.

**Interest:** Today's job was

- ☐ very interesting
- ☑ sort of interesting
- ☐ dull

**Difficulty:** This job was

- ☐ very easy
- ☑ not too hard
- ☐ pretty hard

**Usefulness:** I think this job will be

- ☐ very useful to me in work or school
- ☑ fairly useful to me in work or school
- ☐ not too useful to me in work or school

**Understanding:** I thought the material in this job was

- ☐ easy to understand
- ☑ not too hard to understand
- ☐ hard to understand

**Comments:** (Use this space to comment on any part of the lesson - good or bad.)

# APPENDIX L

Raw Scores and Item Analysis from
General Math and Measuring Skills
Pre- and Post-Tests

GENERAL MATH TEST

Equivalent Items (36)

Tutorial Group

Pre-Test

N = 12

$\overline{X}$ = 32.5%  S = 25.41

| Student Number | Total Score Raw | Percent | $X - \overline{X}$ | $(X - \overline{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| 01 | 1 | 2.8 | 29.7 | 882.09 | 084 | 14 | 12 |
| 02 | 31 | 86.0 | 53.5 | 2862.25 | 107 | 17 | 15 |
| 03 | 19.5 | 54.2 | 21.7 | 470.89 | 082 | 15 | 12 |
| * 04 | 3 | 8.3 | 24.2 | 585.64 | 101 | 13 | 12 |
| 05 | 7 | 19.4 | 13.1 | 171.61 | 077 | 15 | 14 |
| 06 | 8 1/2 | 23.6 | 8.9 | 79.21 | 100 | 14 | 12 |
| 07 | 2 1/2 | 6.9 | 25.6 | 655.36 | 080 | 15 | 12 |
| 08 | 10 1/2 | 29.2 | 3.3 | 1089.00 | 083 | 13 | 13 |
| * 09 | 7 1/2 | 20.8 | 11.7 | 136.89 | 090 | 14 | 13 |
| 10 | 15 | 41.7 | 9.2 | 84.64 | 109 | 16 | 12 |
| 11 | 11 1/2 | 32.0 | .5 | .25 | 083 | 16 | 13 |
| 12 | 21 1/2 | 59.7 | 27.2 | 739.84 | 102 | 14 | 14 |
| | | $\Sigma$=384.6 | | $\Sigma$=7757.67 | 109.0 | 176 | 154 |

* **did not complete pre-test** but did complete 36 equivalent items.

| Mean IQ Score = | Mean"R" Score = | Mean "A" Score = |
|---|---|---|
| 91.5 | 15.5 | 12.8 |

GENERAL MATH TEST

Equivalent Items (36)

Tutorial Group

Post-Test

N = 12

$\bar{X}$ = 70.1%  S = 22.73

| Student Number | Total Score Raw | Total Score Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| 01 | 4.5 | 12.5 | 57.6 | 3317.76 | 084 | 14 | 12 |
| 02 | 34 | 94.4 | 26.9 | 723.61 | 107 | 17 | 15 |
| 03 | 27 | 75.0 | 4.9 | 24.01 | 082 | 15 | 12 |
| * 04 | 32 | 89.0 | 18.9 | 357.21 | 101 | 13 | 12 |
| 05 | 25.5 | 70.8 | .7 | .49 | 077 | 15 | 14 |
| 06 | 28 | 77.8 | 7.7 | 59.29 | 100 | 14 | 12 |
| 07 | 20.5 | 56.9 | 13.2 | 174.24 | 080 | 15 | 12 |
| 08 | 29.5 | 82.0 | 11.9 | 141.61 | 083 | 13 | 13 |
| * 09 | 26 | 72.0 | 2.1 | 4.41 | 090 | 14 | 13 |
| 10 | 30.5 | 84.8 | 14.7 | 216.09 | 109 | 16 | 12 |
| 11 | 17.0 | 47.2 | 22.9 | 524.41 | 083 | 16 | 13 |
| 12 | 33.5 | + 93.1 | 25.7 | 660.49 | 102 | 14 | 14 |
| | | $\Sigma$ = 861.0 | | $\Sigma$ = 6203.62 | 109.0 | 176 | 154 |

Mean IQ Score = 91.5

Mean "R" Score = 15.5

Mean "A" Score = 12.8

P

GENERAL MATH TEST

Equivalent Items (36)

Teacher Revised Group

Pre-Test

N = 10

$\bar{X}$ = 20.55%  S = 25.15

| Student Number | Total Score Raw | Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| R-01 | 9 | 25.0 | 4.4 | 19.36 | 085 | 15 | 13 |
| 02 | 1 1/2 | 4.2 | 16.4 | 268.96 | 083 | 12 | 14 |
| 03 | 1/2 | 1.4 | 19.2 | 368.64 | 084 | 12 | 12 |
| 04 | 33 | 91.7 | 71.1 | 5055.21 | 098 | 13 | 13 |
| 05 | 8 | 22.2 | 1.6 | 2.56 | 098 | 14 | 13 |
| 06 | 1/2 | 1.4 | 19.2 | 368.64 | 080 | 16 | 11 |
| 07 | 6 1/2 | 18.0 | 2.6 | 6.76 | 089 | 12 | 12 |
| 08 | 4 | 11.1 | 9.5 | 90.25 | 083 | 14 | 12 |
| 09 | 8 | 22.2 | 1.6 | 2.56 | 091 | 16 | 12 |
| 10 | 3 | 8.3 | 12.3 | 151.29 | 086 | 14 | 12 |
| | | 205.5 | | 6334.23 | 877 | 138 | 124 |

Mean IQ Score = 87.7

Mean "R" Score = 13.8

Mean "A" Score = 12.4

P +

GENERAL MATH TEST

Equivalent Items (36)

Teacher Revised Group

N = 10

Post-Test

$\bar{X}$ = 48.7%  S = 25.1

| Student Number | Total Score Raw | Total Score Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| R-01 | 23.5 | 65.5 | - 16.8 | 282 | 085 | 15 | 13 |
| 02 | 9 | 25.0 | - 23.7 | 561 | 083 | 12 | 14 |
| 03 | 12 | 33.3 | - 15.4 | 237 | 084 | 12 | 12 |
| 04 | 33 | 91.7 | 43.3 | 1874 | 098 | 13 | 13 |
| 05 | 27 | 75.0 | 26.3 | 691 | 098 | 14 | 13 |
| 06 | 10.5 | 29 | - 19.7 | 388 | 080 | 16 | 11 |
| 07 | 21.5 | 59.7 | 11.0 | 121 | 089 | 12 | 12 |
| 08 | 6.5 | 18 | - 30.7 | 942 | 083 | 14 | 12 |
| 09 | 25 | 69.5 | 20.8 | 432 | 091 | 16 | 12 |
| 10 | 7.5 | 20.8 | - 27.9 | 778 | 086 | 14 | 12 |
| | 175.5 | 487.8 | | 6306 | 877 | 138 | 124 |

Mean IQ Score = 87.7

Mean "R" Score = 13.8

Mean "A" Score = 12.4

GENERAL MATH TEST

Equivalent Items (36)

Control Group Post-Test
(Summer Proctored)

N = 15

$\bar{X}$ = 48.92 S = 26.4

| Student Number | Total Score Raw | Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| 001 | 11 | 30.6 | - 18.3 | 334 | 085 | 12 | 13 |
| 002 | 17 | 47 | - 1.9 | 3 | 082 | 12 | 13 |
| 003 | 5 1/2 | 15.25 | - 33.7 | 1135 | 086 | 13 | 12 |
| 004 | 1 1/2 | 19.4 | - 29.5 | 870 | 084 | 15 | 16 |
| 005 | 15 1/2 | 43.0 | - 5.9 | 35 | 103 | 10 | 14 |
| 006 | 1 1/2 | 4.2 | - 44.7 | 1998 | 089 | 12 | 12 |
| 007 | 24 1/2 | 68 | 19.1 | 364 | 087 | 13 | 13 |
| 008 | 20 | 56.9 | 1.7 | 3 | 085 | 12 | 12 |
| 009 | 5 | 14 | - 34.9 | 1218 | 078 | 14 | 13 |
| 010 | 10 1/2 | 29 | - 19.9 | 396 | 078 | 14 | 11 |
| 011 | 27 | 75 | 26.1 | 681 | 098 | 14 | 12 |
| 012 | 33 1/2 | 93.1 | 44.1 | 1944 | 095 | 16 | 14 |
| 013 | 26 | 72 | 23.1 | 533 | 087 | 15 | 14 |
| 014 | 28 | 78 | 29.1 | 846 | 085 | 15 | 12 |
| 015 | 21 | 58 | 9.1 | 82 | 104 | 18 | 12 |
| | | $\Sigma$ = 734.9 | | $\Sigma$ = 10,442 | 1326 | 205 | 193 |

Mean IQ Score = 88.40

Mean "R" Score = 13.67

Mean "A" Score = 12.87

MEASUREMENT SKILLS TEST

Tutorial Group

Pre-Test

N = 10
[-4 + 9]

$\bar{X}$ = 32.87 %  S = 21.82

| Student Number | Total Score Raw | Percent | $X - \bar{X}$ | $(X - X)^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| T-01 | 4 | 3.7 | 29.2 | 852.64 | 084 | 14 | 12 |
| 02 | 81 | 75.6 | 42.7 | 1823.29 | 107 | 17 | 15 |
| 03 | 61 | 57.0 | 24.1 | 580.81 | 082 | 15 | 12 |
| 04 | | | | | | | |
| 05 | 17 | 15.8 | 17.1 | 292.41 | 077 | 15 | 14 |
| 06 | 25 | 23.4 | 9.5 | 90.25 | 100 | 14 | 12 |
| 07 | 9 | 8.4 | 24.5 | 600.25 | 080 | 15 | 12 |
| 08 | 38 | 35.5 | 2.6 | 6.76 | 083 | 13 | 13 |
| 09 | | | | | | | |
| 10 | 47 | 43.9 | 11.0 | 121.00 | 109 | 16 | 12 |
| 11 | 20 | 18.7 | 14.2 | 201.46 | 083 | 16 | 13 |
| 12 | 50 | 46.7 | 13.8 | 190.44 | 102 | 14 | 14 |
| | | $\Sigma$=328.7 | | $\Sigma$=4759.31 | 907 | 149 | 129 |

Mean IQ Score = 90.7

Mean "R" Score = 14.9

Mean "A" Score = 12.9

MEASUREMENT SKILLS TEST

Tutorial Group

Post-Test

N = 10
[-4 + 9]

$\bar{X}$ = 68.64%  S = 24.56

| Student Number | Total Score Raw | Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| T-01 | 23 | 21.5 | 47.1 | 2218.41 | 084 | 14 | 12 |
| 02 | 104 | 97.2 | 28.6 | 817.96 | 107 | 17 | 15 |
| 03 | 82 | 76.5 | 7.9 | 62.41 | 082 | 15 | 12 |
| 04 | | | | | | | |
| 05 | 50 | 46.7 | 21.9 | 479.61 | 077 | 15 | 14 |
| 06 | 82 | 76.5 | 7.9 | 62.41 | 100 | 14 | 12 |
| 07 | 53 | 49.5 | 19.1 | 364.81 | 080 | 15 | 12 |
| 08 | 95 | 88.7 | 20.1 | 404.01 | 083 | 13 | 13 |
| 09 | | | | | | | |
| 10 | 99 | 92.5 | 23.9 | 571.21 | 109 | 16 | 12 |
| 11 | 49 | 45.8 | 22.8 | 519.84 | 083 | 16 | 13 |
| 12 | 98 | 91.5 | 22.9 | 524.41 | 102 | 14 | 14 |
| | | $\Sigma$=686.4 | | $\Sigma$6025.08 | 907 | 149 | 129 |

Mean Gain over Pre-test = 35.77%

Mean IQ Score = 90.7

Mean "R" Score = 14.9

Mean "A" Score = 12.9

P.

MEASURING SKILLS TEST

Teacher Revised Group

Pre-Test

N = 10

$\bar{X}$ = 29.38%  S = 19.54

| Student Number | Total Score Raw | Total Score Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| R-01 | 44 | 41.1 | 11.7 | 136.89 | 085 | 15 | 13 |
| 02 | 15 | 14.0 | 15.4 | 237.16 | 083 | 12 | 14 |
| 03 | 24.5 | 22.9 | 6.5 | 42.25 | 084 | 12 | 12 |
| 04 | 88 | 82.2 | 52.8 | 2787.84 | 098 | 13 | 13 |
| 05 | 37 | 34.6 | 5.2 | 27.04 | 098 | 14 | 13 |
| 06 | 24 | 22.4 | 7.0 | 49.00 | 080 | 16 | 11 |
| 07 | 20 | 18.7 | 10.7 | 114.49 | 089 | 12 | 12 |
| 208 | 21 | 19.6 | 9.8 | 96.04 | 083 | 14 | 12 |
| 09 | 29 | 27.1 | 2.3 | 5.29 | 091 | 16 | 12 |
| 10 | 12 | 11.2 | 18.2 | 331.24 | 086 | 14 | 12 |
| | | 293.8 | | 3827.24 | 877 | 138 | 124 |

Mean IQ Score = 87.7

Mean "R" Score = 13.8

Mean "A" Score = 12.4

MEASURING SKILLS TEST

Teacher Revised Group

Post-Test

N = 10

$\bar{X}$ = 48.05%  S = 26.1

| Student Number | Total Score Raw | Total Score Percent | $X - \bar{X}$ | $(X - \bar{X})^2$ | IQ | "R" | "A" |
|---|---|---|---|---|---|---|---|
| R-01 | 81.5 | 76.0 | 28.0 | 784.00 | 085 | 15 | 13 |
| 02 | 26 | 24.3 | 23.7 | 561.69 | 083 | 12 | 14 |
| 03 | 27 | 25.2 | 22.8 | 519.84 | 084 | 12 | 12 |
| 04 | 96 | 89.7 | 41.7 | 1738.89 | 098 | 13 | 13 |
| 05 | 87.5 | 81.8 | 33.8 | 1142.44 | 098 | 14 | 13 |
| 06 | 34 | 31.7 | 16.3 | 265.69 | 080 | 16 | 11 |
| 07 | 52 | 48.6 | .6 | .36 | 089 | 12 | 12 |
| 08 | 18.5 | 17.3 | 30.7 | 942.49 | 083 | 14 | 12 |
| 09 | 68 | 63.5 | 15.5 | 240.25 | 091 | 16 | 12 |
| 10 | 24 | 22.4 | 25.6 | 655.36 | 086 | 14 | 12 |
| | | 480.5 | | 6851.01 | 877 | 138 | 124 |

Mean IQ Score = 87.7

Mean "R" Score = 13.8

Mean "A" Score = 12.4

Mean gain over Pretest - 18.67%.

(1)

Item Analysis of Measuring Skills
Test Responses (Tutorial Group)

Tuto

| | Pre test | | | | | Post test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Correct | Partial Credit | %C | Blank | Wrong | Correct | %C | Blank | %gain | |
| 1 | (12) | | 100 | | | 12 | (100) | | 0 | |
| 2 | 11 | | 91 | 1 | | 12 | 100 | | 8 | |
| 3 | 5 | | 42 | 1 | 6 | 12 | 100 | | 58 | |
| 4 | 3 | | 25 | 1 | 8 | 10 | 87 | 1 | 58 | 1 |
| 5 | 3 | 1 | 29 | 1 | 7 | 9 | 79 | 1 | 50 | 2 |
| 6 | 3 | 1 | 29 | 2 | 6 | 8 | 74 | 2 | 42 | 2 |
| 7 | 3 | 1 | 29 | 2 | 6 | 10 | 87 | 1 | 58 | 1 |
| 8 | 5 | | 42 | 2 | 5 | 10 | 87 | 1 | 42 | 1 |
| 9 | 4 | | 33 | 2 | 6 | 10 | 87 | 1 | 50 | 1 |
| 10 | 4 | | 33 | 2 | 6 | 10 | 87 | 1 | 50 | 1 |
| (2) | | | | | | | | | | |
| 11 | 10 | | 83 | | 2 | 9 | (75) | | (-8) | 3 |
| 12 | 4 | | 33 | | 8 | 8 | 67 | | 33 | 4 |
| 13 | 1 | 1 | 16 | | 10 | 6 | 50 | | 42 | 6 |
| 14 | 2 | | 16 | | 10 | 6 | 54 | 1 | 33 | 5 |
| 15 | 1 | | 8 | | 11 | 4 | 33 | | 25 | 7 |
| 16 | 1 | 3 | 24 | | 8 | 6 | 62 | 3 | 42 | 3 |

Page

(3)

T

| I | Pre test Correct | Partial Credit | % C | Blanks | Wrong | Post test Correct | Partial Credit | % C | % gain | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7 | | 67 | | 5 | 12 | | 100 | 42 | |
| 2 | 3 | | 25 | | 9 | 10 | | 83 | 58 | 2 |
| 3 | 5 | | 42 | | 7 | 9 | | 75 | 33 | 3 |
| 4 | 6 | | 50 | | 6 | 9 | | 75 | 25 | 3 |
| 5 | 4 | | 33 | | 8 | 11 | | 91 | 58 | 1 |
| 6 | 4 | | 33 | 1 | 7 | 7 | | 58 | 25 | 5 |
| 7 | 4 | | 33 | 1 | 7 | 6 | | 50 | 16 | 6 |
| 8 | 3 | | 25 | 3 | 6 | 5 | | 42 | 16 | 7 |
| 9 | 6 | | 50 | 2 | 4 | 9 | | 75 | 25 | 3 |
| 10 | 2 | | 16 | 3 | 7 | 8 | | 67 | 50 | 4 |
| 11 | 3 | | 25 | 4 | 5 | 6 | | 50 | 25 | 6 |
| 12 | 3 | | 25 | 4 | 5 | 5 | | 42 | 16 | 7 |
| 13 | 6 | | 50 | 3 | 3 | 10 | | 83 | 33 | 1 |
| 14 | 3 | | 25 | 4 | 5 | 8 | | 67 | 42 | 4 |
| 15 | 1 | | 8 | 5 | 6 | 5 | | 42 | 33 | 7 |
| 16 | 2 | | 16 | 5 | 5 | 6 | | 50 | 33 | 6 |
| 17 | 2 | | 16 | 3 | 7 | 9 | | 75 | 58 | 3 |
| 18 | 2 | | 16 | 4 | 6 | 9 | | 75 | 58 | 3 |
| 19 | 1 | | 8 | 7 | 4 | 5 | 2 | 33 | 5 | |
| 20 | 1 | | 8 | 7 | 4 | 4 | 2 | 25 | 6 | |

T

(4)

## Pre test

| Item | Correct | Partial Credit | % Correct | Blank | Wrong |
|---|---|---|---|---|---|
| 1 | 6 | | 50 | 6 | |
| 2 | | 4 | 16 | 8 | |
| 3 | 1 | 3 | 20 | 8 | |
| 4 | 1 | 7 | 36 | 4 | |

## Post test

| Correct | % Correct | Blank | % again | Wrong |
|---|---|---|---|---|
| 11 | | | | |
| 10 | 1 | 87 | 42 | 1 |
| 11 | | 91 | 83 | 1 |
| 4 | 5 | 53 | 83 | 1 |
| | | | 25 | 3 |

(5)

## Pre test

| Item | Correct | Partial Credit | % Correct | Blank | Wrong |
|---|---|---|---|---|---|
| 1 | 1 | 6 | 32 | | 5 |
| 2 | 4 | | 33 | | 8 |
| 3 | 1 | | 8 | | 11 |
| 4 | 6 | | 50 | | 6 |
| 5 | 3 | | 25 | 1 | 8 |
| 6 | 1 | | 8 | 2 | 9 |
| 7 | 2 | | 16 | 1 | 9 |
| 8 | 3 | | 25 | 2 | 7 |

## Post test

| Correct | % Correct | Blank | % again | Wrong |
|---|---|---|---|---|
| 10 | 1 | 87 | 75 | 1 |
| 5 | 5 | 62 | 8 | 2 |
| 7 | 1 | 62 | 50 | 4 |
| 5 ? | 4 | (58) | (-8) | 3 |
| 8 | 2 | 75 | 42 | 2 |
| 6 | 3 | 62 | 42 | 3 |
| 8 | 1 | 71 | 50 | 3 |
| 6 | 4 | 66 | 25 | 2 |

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| Pupil | Pre-test | | | | | Post-test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (6) | Correct | Partial Credit | % C | Blank | Wrong | Correct | Partial Credit | % C | Blank | % again | Wrong |
| 1 | 1 | | 8 | 4 | 7 | 7 | | 58 | 1 | 50 | 4 |
| 2 | 2 | | 16 | 4 | 6 | 9 | | 75 | 1 | 58 | 2 |
| 3 | 2 | | 16 | 5 | 5 | 6 | | 50 | 1 | 33 | 5 |
| 4 | | 1 | 4 | 5 | 6 | 7 | | 58 | 1 | 58 | 4 |
| 5 | 8 | | 67 | 2 | 2 | 10 | | 83 | | 16 | 2 |
| 6 | 2 | 3 | 28 | 2 | 5 | 8 | | 67 | | 50 | 4 |
| 7 | 3 | 1 | 29 | 2 | 6 | 7 | 1 | 62 | | 33 | 4 |
| 1 | 5 | | 42 | 2 | 5 | 6 | 3 | 62 | | 8 | 3 |
| (7) | | | | | | | | | | | |
| 1 | 1 | | 8 | 1 | 10 | 9 | | 75 | | 67 | 3 |
| 2 | 1 | | 8 | 1 | 10 | 9 | | 75 | | 67 | 3 |
| 3 | 1 | | 8 | 2 | 9 | 7 | 1 | 62 | | 50 | 4 |
| 4 | 3 | | 25 | 2 | 7 | 9 | | 75 | | 50 | 3 |
| (8) | | | | | | | | | | | |
| 1 | 2 | 1 | 20 | 2 | 7 | 8 | | 67 | | 50 | 4 |
| 2 | 2 | | 16 | 2 | 8 | 7 | | 58 | | 42 | 5 |
| 3 | 2 | | 16 | 2 | 8 | 7 | | 58 | | 42 | 5 |
| 4 | 2 | | 16 | 2 | 8 | 8 | | 67 | | 50 | 4 |
| 5 | 2 | | 16 | 2 | 8 | 8 | | 67 | | 50 | 4 |
| 6 | 2 | | 16 | 2 | 8 | 8 | | 67 | | 50 | 4 |
| 7 | 2 | | 16 | 2 | 8 | 9 | | 75 | | 50 | 3 |
| 8 | 2 | | 16 | 2 | 8 | 8 | | 67 | | 50 | 4 |

Page (9)

| | Pre test | | | | Post test | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Correct | Partial Credit % C | Blank | Wrong | Correct | Partial Credit % C | Blank % gain | | Wrong |
| 1 | 2 | 16 | 5 | 5 | 8 | 2 75 | | 50 | 2 |
| 2 | 2 | 16 | 5 | 5 | 8 | 1 71 | | 50 | 3 |
| 3 | 2 | 16 | 5 | 5 | 10 | 83 | | 67 | 2 |
| 4 | 3 | 25 | 6 | 3 | 7 | 2 66 | | 33 | 3 |
| 5 | 3 | 25 | 6 | 3 | 7 | 58 | 1 | 33 | 4 |
| 6 | 4 | 33 | 6 | 2 | 9 | 75 | 2 | 42 | 1 |
| 7 | 4 | 33 | 6 | 2 | 9 | 75 | 2 | 42 | 1 |
| 8 | 4 | 33 | 6 | 2 | 8 | 67 | 2 | 33 | 2 |

(10)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7 | 58 | 3 | 2 | 9 | 75 | | 16 | 3 |
| 2 | 8 | 67 | 3 | 1 | 9 | 75 | | 8 | 3 |
| 3 | 5 | 42 | 4 | 3 | 8 | 67 | | 25 | 4 |
| 4 | 5 | 42 | 4 | 3 | 9 | 75 | 1 | 33 | 2 |
| 5 | 0 | 0 | 9 | 3 | 3 | 25 | 4 | 25 | 5 |
| 6 | 1 | 8 | 9 | 2 | 3 | 25 | 4 | 16 | 5 |
| 7 | 7 | 58 | 2 | 3 | 12 | 100 | | 42 | |
| 8 | 9 | 75 | 2 | 1 | 12 | 100 | | 25 | |

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(11)

| | Pre test | | | | | Post test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Correct | Partial Credit | % C | Blank | Wrong | Correct | Partial Credit | % C | Blank % again | Wrong |
| 1 | 2 | | 16 | 6 | 4 | 10 | 2 | 91 | 67 | |
| 2 | 5 | | 42 | 5 | 2 | 7 | 1 | 62 | 16 | 4 |
| 3 | 2 | 2 | 24 | 5 | 3 | 3 | 4 | 41 | 8 | 5 |
| 4 | 3 | | 25 | 5 | 4 | 8 | 3 | 79 | 42 | 1 |
| 5 | 8 | | 67 | 2 | 2 | 10 | | 83 | 16 | 2 |
| 6 | 8 | | 67 | 2 | 2 | 12 | | 100 | 33 | |
| 7 | 8 | | 67 | 2 | 2 | 11 | | 91 | 25 | 1 |
| 8 | 5 | | 42 | 2 | 5 | 10 | | 83 | 42 | 2 |

(12)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5 | | 42 | 5 | 2 | 6 | | 50 | 2 | 8 | 4 |
| 2 | 1 | | 8 | 6 | 5 | 7 | | 58 | 1 | 50 | 4 |
| 3 | [illegible] | 1 | 4 | 7 | 4 | 8 | | 67 | 2 | 67 | 2 |
| 4 | 4 | | 33 | 7 | 1 | 8 | | 67 | 2 | 33 | 2 |
| 5 | 3 | | 25 | 7 | 2 | 7 | 1 | 62 | 3 | 33 | 1 |
| 6 | 1 | | 8 | 7 | 4 | 7 | 1 | 62 | 3 | 50 | 1 |
| 7 | 1 | | 8 | 7 | 4 | 6 | 1 | 54 | 3 | 42 | 2 |
| 8 | 2 | | 16 | 7 | 3 | 5 | 1 | 46 | 3 | 25 | 3 |
| 9 | 2 | | 16 | 7 | 3 | 6 | | 50 | 3 | 33 | 3 |
| 10 | 1 | | 8 | 7 | 4 | 7 | | 58 | 2 | 50 | 2 |
| 11 | 1 | | 8 | 7 | 4 | 6 | | 50 | 2 | 42 | 3 |
| 12 | 0 | | 0 | 7 | 5 | 6 | 1 | 54 | 3 | 50 | 2 |

T

(13)

| | Pre-test | | | | Post-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Correct | Partial Credit | Blank | Wrong | Correct | Partial Credit | Blank | Wrong |
| | | % C | | | | % C / % again | | |
| 1 | 0 | 4 16 | 1 | 7 | 8 | 2 75 | 67 | 2 |
| 2 | 1 | 1 12 | 1 | 9 | 8 | 1 61 | 58 | 3 |
| 3 | 1 | 1 12 | 1 | 9 | 6 | 3 62 | 42 | 3 |

P

## Item Analysis of Measuring Skills
## Test Responses (Teacher Group)

(1)

| Item | Pre test: correct | % correct | Part Credit | Blanks | Wrong | Post test: correct | % correct | Part Credit | Blanks | % Gain | Wrong |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5 | 50 | | 1 | 4 | 8 | 80 | | | 30 | 2 |
| 2 | 5 | 50 | | 1 | 4 | 6 | 70 | 2 | | 20 | 2 |
| 3 | 2 | 20 | | 1 | 7 | 8 | 80 | | | 60 | 2 |
| 4 | 1 | 10 | | 2 | 7 | 5 | 55 | 1 | | 45 | 4 |
| 5 | 1 | 10 | | 2 | 7 | 5 | 55 | 1 | | 45 | 4 |
| 6 | 1 | 10 | | 3 | 6 | 3 | 40 | 2 | | 30 | 5 |
| 7 | 1 | 10 | | 3 | 6 | 4 | 45 | 1 | | 35 | 5 |
| 8 | 1 | 10 | | 3 | 6 | 4 | 45 | 1 | | 35 | 5 |
| 9 | 1 | 10 | | 3 | 6 | 3 | 40 | 2 | | 30 | 5 |
| 10 | 1 | 15 | 1 | 3 | 5 | 3 | 40 | 2 | | 25 | 5 |
| | | | | | | T | 550 | | | | |

(2)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 5 | 50 | | 1 | 4 | 8 | 80 | | | 30 | 2 |
| 12 | 1 | 25 | 3 | 1 | 5 | 4 | 40 | | | 15 | 6 |
| 13 | 1 | 15 | 1 | 1 | 7 | 2 | 30 | 2 | | 15 | 6 |
| 14 | 1 | 15 | 1 | 1 | 7 | 1 | 10 | | | (-5) | 9 |
| 15 | 2 | 20 | | 1 | 7 | 1 | 10 | | | (-10) | 9 |
| 16 | 1 | 10 | | 1 | 8 | 2 | 20 | | | 10 | 8 |
| | | | | | | T | 190 | | | | |

36 "red boxes"

items : total = 1600

mean = 46.7

(3)

P

| I, m | | Pre-test Correct | Part | % C | Blank | Wrong | Post-test Correct | Part | % C | Blank | c/o Grid | Wrong |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | a | 8 | | 80 | | 2 | 8 | | 80 | | 0 | 2 |
| | b | 6 | | 60 | | 4 | 8 | | 80 | | 20 | 2 |
| | c | 6 | | 60 | | 4 | 7 | | 70 | | 10 | 3 |
| | d | 5 | | 50 | 1 | 4 | 7 | | 70 | | 20 | 3 |
| 18 | a | 7 | | 70 | 1 | 2 | 7 | | 70 | | 0 | 3 |
| | b | 7 | | 70 | 1 | 2 | 7 | | 70 | | 0 | 3 |
| | c | 5 | | 50 | 1 | 4 | 5 | | 50 | | 0 | 5 |
| | d | 4 | | 40 | 1 | 5 | 5 | | 50 | | 10 | 5 |
| 19 | a | 7 | | 70 | 1 | 2 | 6 | | 60 | 3 | (-10) | 1 |
| | b | 3 | | 30 | 3 | 4 | 3 | | 30 | 3 | 0 | 4 |
| | c | 2 | | 20 | 3 | 5 | 4 | | 40 | 3 | 20 | 3 |
| | d | 2 | | 20 | 3 | 5 | 5 | | 50 | 3 | 30 | 2 |
| 20 | a | 5 | | 50 | 1 | 4 | 6 | | 60 | 3 | 10 | 1 |
| | b | 2 | | 20 | 4 | 4 | 5 | | 50 | 3 | 30 | 2 |
| | c | 1 | | 10 | 5 | 4 | 0 | | 0 | 3 | (-10) | 7 |
| | d | 0 | | 0 | 4 | 6 | 2 | | 20 | 3 | 20 | 5 |
| 21 | a | 1 | | 10 | 4 | 5 | 3 | | 30 | 4 | 20 | 3 |
| | b | 1 | | 10 | 4 | 5 | 3 | | 30 | 4 | 20 | 3 |
| | c | 0 | | 0 | 5 | 5 | 2 | | 20 | 5 | 20 | 3 |
| | d | 0 | | 0 | 5 | 5 | 2 | | 20 | 5 | 20 | 3 |
| | | | | | | | | T | 130 | | | |

(4)

| Item | Pre test Correct | % C | Part | Blank | Wrong | Post test correct | % C | Part | Blank | % of Guess | Wrong |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 40 | 2 | | 5 | 5 | 50 | | | 10 | 5 |
| 2 | 1 | 15 | 1 | | 8 | 5 | 60 | 2 | | 45 | 3 |
| 3 | 2 | 25 | 1 | | 7 | 4 | 40 | | | 15 | 6 |
| 4 | 1 | 25 | 3 | | 6 | 4 | 65 | 5 | | 40 | 1 |
| | | | | | | T | 60 | | | | |
| (5) | | | | | | | | | | | |
| 5 | 0 | 25 | 5 | 2 | 3 | 8 | 80 | | | 55 | 2 |
| 6 a | 3 | 30 | | 3 | 4 | 4 | 50 | 2 | | 20 | 4 |
| b | 1 | 10 | | 2 | 7 | 4 | 45 | 1 | | 35 | 5 |
| c | 1 | 10 | | 2 | 7 | 4 | 45 | 1 | | 35 | 5 |
| 7 a | 1 | 10 | | 3 | 6 | 6 | 60 | | | 50 | 4 |
| b | 1 | 10 | | 3 | 6 | 6 | 65 | 1 | | 55 | 3 |
| c | 1 | 10 | | 3 | 6 | 5 | 50 | | 1 | 40 | 4 |
| d | 1 | 10 | | 2 | 7 | 4 | 45 | 1 | 1 | 35 | 4 |
| | | | | | | T | 360 | | | | |

P

(6)

| | Correct | % C | Part | Blank | Wrong | Correct | % C | Part | Blank | Wrong |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 1 | 10 | | 2 | 7 | 3 | 30 | | 20 | 7 |
| 9 | 2 | 20 | | 2 | 6 | 3 | 35 | 1 | 15 | 6 |
| 10 | 2 | 20 | | 2 | 6 | 5 | 50 | | 30 | 5 |
| 11 | 2 | 25 | 1 | 2 | 5 | 6 | 60 | | 35 | 4 |
| 12 | 3 | 45 | 3 | | 4 | 7 | 70 | | 25 | 3 |
| 13 | 1 | 20 | 2 | | 7 | 3 | 35 | 1 | 15 | 6 |
| 14 | 3 | 30 | | | 7 | 5 | 55 | 1 | 25 | 4 |
| 15 | 2 | 10 | | | 8 | 5 | 50 | | 40 | 5 |
| | | | | | | T | 210 | | | |

(7)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 1 | 15 | 1 | | 8 | 4 | 40 | | 25 | 6 |
| 17 | 4 | 40 | | | 6 | 4 | 45 | 1 | 5 | 5 |
| 18 | 5 | 50 | | 1 | 4 | 5 | 50 | | 0 | 5 |
| 19 | 4 | 40 | | 1 | 5 | 8 | 80 | | 40 | 2 |
| | | | | | | T | 80 | | | |

(8)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 2 | 30 | 2 | 1 | 5 | 3 | 35 | 1 | 5 | 6 |
| 21 a | 1 | 20 | 2 | | 7 | 4 | 40 | | 20 | 6 |
| b | 1 | 20 | 2 | | 7 | 4 | 40 | | 20 | 6 |
| c | 1 | 15 | 1 | | 8 | 3 | 35 | 1 | 20 | 6 |
| 22 a | 1 | 10 | | 1 | 8 | 4 | 40 | | 30 | 5 |
| b | 1 | 15 | 1 | 1 | 7 | 4 | 40 | | 25 | 5 |
| c | 1 | 20 | 2 | 1 | 6 | 4 | 40 | | 20 | 5 |
| d | 1 | 10 | | 1 | 8 | 4 | 40 | | 30 | 5 |

| | Pre test | | | | | Post test | | | | | P |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Correct | % C | part credit | Blank | Wrong | Correct | % C | part Credit | Blank | | Wrong |
| (9) | | | | | | | | | | | |
| 23 | 0 | 10 | 2 | 1 | 7 | 4 | 40 | | 1 | 30 | 6 |
| 24 | 3 | 45 | 3 | 1 | 3 | 6 | 60 | | 2 | 15 | 2 |
| 25 | 0 | 5 | 1 | 1 | 8 | 4 | 40 | | 1 | 35 | 5 |
| 26 | 1 | 25 | 3 | 1 | 5 | 3 | 35 | 1 | 1 | 10 | 5 |
| 27 | 1 | 10 | | 5 | 4 | 1 | 10 | | 6 | 0 | 3 |
| 28 | 1 | 15 | 1 | 5 | 3 | 3 | 30 | | 5 | 15 | 2 |
| 29 | 2 | 20 | | 5 | 3 | 3 | 30 | | 5 | 10 | 2 |
| 30 | 2 | 20 | | 6 | 2 | 2 | 25 | 1 | 5 | 5 | 2 |
| | | | | | | T | 110 | | | | |
| (10) | | | | | | | | | | | |
| 31 | 5 | 50 | | 2 | 3 | 8 | 80 | | | 30 | 2 |
| 32 | 5 | 50 | | 2 | 3 | 8 | 80 | | | 30 | 2 |
| 33 | 4 | 40 | | 2 | 4 | 4 | 40 | | | 0 | 6 |
| 34 | 3 | 30 | | 1 | 6 | 6 | 60 | | | 30 | 4 |
| 35 | 0 | 0 | | 9 | 1 | 1 | 10 | | 4 | 10 | 5 |
| 36 | 0 | 0 | | 9 | 1 | 3 | 30 | | 4 | 30 | 3 |
| 37 a | 6 | 60 | | 1 | 3 | 6 | 60 | | 3 | 0 | 1 |
| b | 8 | 80 | | 1 | 1 | 5 | 50 | | 3 | (-30) | 1 |

(11)

| | | Pre test | | | | | Post test | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Correct | % Correct | Part Credit | Blank | Wrong | Correct | % Correct | Part Credit | Blank | % Not Blank | Wrong |
| 38 | a | 0 | 0 | | 1 | 9 | 7 | 70 | | | 90 | 3 |
| | b | 4 | 40 | | 1 | 5 | 4 | 40 | | | 0 | 6 |
| 39 | a | 0 | 15 | 3 | 2 | 5 | 1 | 30 | 4 | | 15 | 5 |
| | b | 2 | 20 | | 1 | 7 | 3 | 40 | 2 | | 20 | 5 |
| 40 | 1 | 5 | 50 | | 1 | 4 | 6 | 60 | | | 10 | 4 |
| | 2 | 7 | 70 | | 1 | 2 | 8 | 80 | | | 10 | 2 |
| | 3 | 7 | 70 | | 1 | 2 | 6 | 60 | | | (10) | 4 |
| | 4 | 6 | 60 | | 1 | 3 | 9 | 90 | | | 30 | 1 |

(12)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 1 | 4 | 40 | | 2 | 4 | 5 | 50 | | 2 | 10 | 3 |
| | 2 | 3 | 30 | | 2 | 5 | 5 | 50 | | 3 | 20 | 2 |
| | 3 | 1 | 10 | | 4 | 5 | 4 | 40 | | 3 | 30 | 3 |
| | 4 | 2 | 20 | | 4 | 4 | 4 | 40 | | 3 | 20 | 3 |
| 42 | 1 | 2 | 20 | | 4 | 4 | 3 | 30 | | 3 | 10 | 4 |
| | 2 | 1 | 10 | | 5 | 4 | 3 | 30 | | 3 | 20 | 4 |
| | 3 | 1 | 10 | | 5 | 4 | 3 | 30 | | 3 | 20 | 4 |
| | 4 | 2 | 20 | | 5 | 3 | 3 | 35 | 1 | 3 | 15 | 3 |
| 43 | 1 | 2 | 20 | | 5 | 3 | 5 | 50 | | 3 | 30 | 2 |
| | 2 | 3 | 30 | | 5 | 2 | 2 | 20 | | 3 | (10) | 5 |
| | 3 | 2 | 20 | | 5 | 3 | 2 | 20 | | 3 | 0 | 5 |
| | 4 | 4 | 40 | | 4 | 2 | 2 | 20 | | 3 | (20) | 5 |

(13)

P

| | Pre test | | | | Post test | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Correct | % Correct | Part Credit | Blank | Wrong | Correct | % Correct | Part Credit | Blank (% Blank) | Wrong |
| 1 | 1 | 10 | | | 9 | 3 | 35 | 1 | 25 | 6 |
| 2 | 2 | 20 | | | 8 | 2 | 25 | 1 | 5 | 7 |
| 3 | 2 | 20 | | | 8 | 4 | 40 | | 20 | 6 |

APPENDIX M

Sampling of Daily Log Prepared by
Film Instructor

Continuation of previous reports. Some profiles and other observations.

"Butch": The first, second or third night we had theclass, a woman showed up outside the hallway at Heritage House, and knocked on the door. It turned out it was Butch's mother. As part of his probation he is not supposed to be out on the street, and she wondered what he was doing and where he was. When we told her what we were up to, she said that it was fine, anything that would keep him off the street.

When I went over to pick up Butch one Saturday, his mother and four or five other women were sitting in the dining room of the house with a bottle of "Calvert's" on the table. All of the women were neatly dressed and the house, from what little I saw of it, was fairly well-kept.

Butch has to go out to his Grandmother's house every Friday night, That's in Germantown. It takes about an hour by bus. I don't know why, I haven't asked and he hasn't volunteered the information.

Now a little more about Butch. He has a surprising depth of thought. I've had some discussions with him about racism, the nature of God, what's right and what's wrong. He knows the difference. He attributes the wine-drinking which he and the other guys indulge in to not having anything to do. He says it's better than sitting around. I asked him if he had ever heard of cocoa leaves that the Indians in the Peruvian Andes chewed. These are leaves chewed to relieve the same type of boredom or deprivation of food and water. He has, and he relates this to his drinking.

He doesn't believe in non-violence. The way he puts it is if someone spits on him and he's marching down the street, he's not going to turn the other cheeck. But he also says that if any gang, etc. tried to break into his home, reversing the situation into one of riot, he could not blame anyone who defended himself.

In discussing God he brings up the idea of explaining the abstraction - that you must believe without having something to touch. I have't asked him

what religious faith he professes. I don't know. He may be Protestant, he may be Catholic or he may even be Jewish, although I rather doubt this. (Point of information) - There are a lot of Negro Jews and when I asked someone, they said that a lot of the merchants in Negro areas are Jewish and the Negroes see that the Jewish people are successful and they seem to connect religion and success in a commercial sense, and so they take the same religion.

To get back to Butch, he believes you must believe in something without having something to touch. He's aware of the religion which considers that all things not made by man have some divinity as part of their nature. He was in court last week on a charge of "assault and battery" pending from last summer. The circumstances are somewhat cloudy. He says that sometimes he's been wrong in doing what he's done, but in this case he thinks it was justified. The circumstances as he explains them, I think he was probably justified in doing what he did also, considering the society that abounds down here.

I told him that when he went to court, if it would help I would come down and say something. I told him that I couldn't put the Company on the line, but I would put myself on the line for him. He got off, but the Judge told him that when he graduates from school, he'll have to enlist in the Marine Corps. I told him that if he does, I will try to get him into a Photographic School in the Marine Corps.

Harold Haskins tells me that the fact that I took him and Marvin home one Friday evening from class, (It was somewhat out of my way), made a great impression. As far as I'm concerned, it was only common courtesy.

More and more in dealing with Butch, I find that the kid is smart...he's got a pretty level head. He says that in school, he sort of likes to learn. I asked him about the teachers. He said well some teachers really teach, but some of them (and he names one whom I forget) used to come in at the beginning of the period, write a lot of things on the blackboard and make them copy them.